

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 985088	NANOCOLOR total Nitrogen TNb 220	Page: 1/18
Printing date: 15.05.2024	Date of issue: 01.02.2024	Version: 2.4.3.16

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

1.1 Product identifier

REF 985088
 Product name NANOCOLOR total Nitrogen TNb 220

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 11 mL NO ₃ /N (R2)	UFI: WE6U-A31D-7208-6G1H
1 x 4 g NanOx N Decomposition reagent	UFI: 448U-E3UA-C205-E9PT
20 x 4.5 mL decomposition tubes A (RA)	
20 x 4 mL total Nitrogen TN _b 220 (R0)	UFI: 6NMU-83AH-D20G-21SF
1 x 20x 14 mg NANOFIX Compensation reagent	

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

Relevant identified uses
 Product for analytical use.
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0
 The exposure scenario is integrated into sections 1-16.

Uses advised against
 not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:
 MACHEREY-NAGEL GmbH & Co. KG
 Valencienner Str. 11, 52355 Düren, Germany
 Phone: +49 2421 969 0

E-mail: sds@mn-net.com (msds@mn-net.com)

1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service
 DE: Gemeinsames Gif tinformat ionszentrum (GGIZ)
 99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>

You find our current versions of SDS in Internet:

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

Lieferant / Supplier:
 Carl Roth GmbH + Co KG
 Schoemperlenstr. 3-5
 76185 Karlsruhe, Germany
 +49 721 5606 0
 sicherheit@carlroth.de

SECTION 2: Hazard identification

2.0 Classification of the complete product according to Regulation (EC) 1272/2008



GHS02 GHS03 GHS05 GHS07 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3
H272	Ox. Liq. 2
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1 B
H317	Skin Sens. 1
H334	Resp. Sens. 1
H335	resp. irrit. STOT SE 3
H336	resp. irrit. STOT SE 3

2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

4 g NanOx N Decomposition reagent



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GHS03 GHS07 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
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	resp. irrit. STOT SE 3

11 mL NO₃/N (R2)



GHS02 GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3
H319	Eye Irrit. 2
H336	resp. irrit. 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. 1 B

4.5 mL decomposition tubes A (RA)

Signal word Do not need labelling as hazardous

No hazard class -

20x 14 mg NANOFIX Compensation reagent

Signal word Do not need labelling as hazardous

No hazard class -

List of H phrases: see section 16.2



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2.2 Label elements according regulation (EC) 1272/2008

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

4 g NanOx N Decomposition reagent



Signal word: DANGER
H317, H334

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

P261sh, P280sh, P284, P302+352, P333+313, P342+311, P362+364, P501

Avoid breathing dust/vapours. Wear protective gloves/eye protection. [In case of inadequate ventilation] wear respiratory protection. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. Take off contaminated clothing and wash it before reuse. Dispose of contents/container to regulated waste treatment.

11 mL NO₃/N (R2)



Signal word: WARNING

4 mL total Nitrogen TN_b 220 (R0)



Signal word: DANGER
H314

Causes severe skin burns and eye damage.

P260sh, P264, P280sh, P303+361+353, P305+351+338, P310, P405, P501

Do not breathe dust/vapours. Wash hands thoroughly after handling. 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. Store locked up. Dispose of contents/container to regulated waste treatment.

4.5 mL decomposition tubes A (RA)

Do not need labelling as hazardous

Signal word: -

20x 14 mg NANOFIX Compensation reagent

Do not need labelling as hazardous

Signal word: -

Label elements of the complete product



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Signal word: DANGER

H314, H317, H334

Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

P260sh, P264, P280sh, P284, P303+361+353, P305+351+338, P310, P333+313, P405, P501

Do not breathe dust/vapours. Wash hands thoroughly after handling. Wear protective gloves/eye protection. [In case of inadequate ventilation] wear respiratory 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. If skin irritation or rash occurs: Get medical advice/attention. Store locked up. Dispose of contents/container to regulated waste treatment.

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

Should not be released into the environment.

PBT: not applicable

vPvB: not applicable

Possible endocrine disrupting effects

no data available

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

4 g NanOx N Decomposition reagent

Substance name: *sodium carbonate*

CAS No.: 497-19-8

Substance rating: H319, Eye Irrit. 2

Formula: Na_2CO_3

Pseudonym (de): Soda

REACH Reg. No.: 01-2119485498-19-xxxx

EC No.: 207-838-8

Indice No.: 011-005-00-2

Concentration: 20 - <50 %

acc. CLP (GHS): H319, Eye Irrit. 2

Substance name: *potassium peroxydisulfate*

CAS No.: 7727-21-1

Substance rating: 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, resp. irrit. STOT SE 3

Formula: $\text{K}_2\text{O}_8\text{S}_2$

Pseudonym (de): Kaliumpersulfat

REACH Reg. No.: 01-2119495676-19-xxxx

EC No.: 231-781-8

Indice No.: 016-061-00-1

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, resp. irrit. STOT SE 3

11 mL NO_3/N (R2)



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Substance name: *2,6-dimethylphenol*
CAS No.: 576-26-1
Substance rating: H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H314, Skin Corr. 1 B, H411, Aquatic Chronic 2
Formula: $C_8H_{10}O$; $(CH_3)_2-C_6H_3-OH$
Pseudonym (de): 2,6-Xylenol
REACH Reg. No.: 01-2119552794-29-xxxx
EC No.: 209-400-1 **Indice No.:** 604-006-00-X
Concentration: 0,1 - <1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *2-propanol*
CAS No.: 67-63-0
Substance rating: H225, Flam. Liq. 2, H319, Eye Irrit. 2, H336, resp. irrit. STOT SE 3
Formula: C_3H_8O
Pseudonym (de): Isopropanol, IPA, Propan-2-ol
REACH Reg. No.: 01-2119457558-25-XXXX
EC No.: 200-661-7 **Indice No.:** 603-117-00-0
Concentration: 35 - <50 %
acc. CLP (GHS): H226, Flam. Liq. 3, H319, Eye Irrit. 2, H336, resp. irrit. STOT SE 3

4 mL total Nitrogen TN b 220 (R0)

Substance name: *o-phosphoric acid*
CAS No.: 7664-38-2
Substance rating: H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1 B
Formula: $H_3PO_4 \cdot H_2O$
Pseudonym (de): Orthophosphorsäure, E338
REACH Reg. No.: 01-2119485924-24-xxxx
EC No.: 231-633-2 **Indice No.:** 015-011-00-6
Concentration: 25 - <40 %
acc. CLP (GHS): H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H314, Skin Corr. 1 B

Substance name: *sulfuric acid*
CAS No.: 7664-93-9
Substance rating: H314, Skin Corr. 1 B
Formula: $H_2SO_4 (\cdot H_2O)$
REACH Reg. No.: 01-2119458838-20-xxxx
EC No.: 231-639-5 **Indice No.:** 016-020-00-8
Specific concentration limit: Eye Irrit. 2; H319: 5 % ≤ C < 15 % - Skin Irrit. 2; H315: 5 % ≤ C < 15 % - Skin Corr 1A; H314 c ≥ 15%
Concentration: 51 - <65 %
acc. CLP (GHS): H314, Skin Corr. 1 B

4.5 mL decomposition tubes A (RA)

Substance name: *water*
CAS No.: 7732-18-5
Substance rating: No criteria for classification or naming of chemical not required.
Formula: H_2O
REACH Reg. No.: exempt, Annex IV
EC No.: 231-791-2
Concentration: 90 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

20x 14 mg NANOFIX Compensation reagent



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Substance name: *sodium sulfite*
 CAS No.: 7757-83-7

Substance rating: No criteria for classification or naming of chemical not required.
 Formula: Na_2SO_3 , E221
 Pseudonym (de): E221, Schwefligsaures Natrium
 REACH Reg. No.: 01-2119537420-49-xxxx
 EC No.: 231-821-4
 Concentration: 70 - <100 %
 acc. CLP (GHS): The criteria for classification are not fulfilled.

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%. List of H and P phrases: see section 16.2.

SECTION 4: First aid measures

4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor. 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

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Chronic effects: Repeated contact, even in small amounts, can lead to sensitization. Rapid penetration and destruction of the skin. Especially in the heated form. Causes severe skin burns and eye damage.

4.3 Indication of any immediate medical attention and special treatment needed

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

5.1.1 Suitable extinguishing media

Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.

5.1.2 Unsuitable extinguishing media

no data available

5.2 Special hazards arising from the substance or mixture

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

Should not be released into the environment.

PBT: not applicable
vPvB: not applicable

6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water. Collect small amounts of leaked liquid and flush with water into drains.

6.4 Reference to other sections

see information in section 5.4,7,8 and 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product. Use only in well-ventilated working areas. Use a safety bottle when shaking test tubes.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging from MACHEREY-NAGEL. Storage class (German chemical industry): see chapter 12.1

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

4 g NanOx N Decomposition reagent

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



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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 Effect 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

20x 14 mg NANOFIX Compensation reagent

Chemical: *sodium sulfite* CAS No.: 7757-83-7

DNEL: 298 inh mg/m³
DNEL = Derived No-Effect Level (for workers)

TRGS 900 (DE): -
E/e respirable

11 mL NO₃ /N (R2)

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 Effect 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
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

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

4.5 mL decomposition tubes A (RA)

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

8.2 Exposure controls



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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 Skin protection / Hand protection

Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

8.2.3 Eye / Face Protection

Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection or face protection.

8.2.4 Skin protection

Recommended to avoid clothing damage, and to avoid contamination with these hazards.

8.2.5 Personal hygiene

Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.

8.2.6 Thermal hazards

no data available

8.3 Limitation and monitoring of environmental exposure

Do not release product into environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

4 g NanOx N Decomposition reagent

a) State of aggregation:	solid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	5-7
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-30 %
n) Dispersion coefficient (K _{o/w}):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

4 mL total Nitrogen TN_b 220 (R0)

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	0-1
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient (K _{o/w}):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1,79 g/cm ³
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available



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20x 14 mg NANOFIX Compensation reagent

a) State of aggregation:	solid (lyophilized)
b) Colour:	white
c) Odor:	odorless
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	no data available
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient (K _{o/w}):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

11 mL NO₃/N (R2)

a) State of aggregation:	liquid
b) Colour:	rose
c) Odor:	alcoholic
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	18,5 °C
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	6-8
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient (K _{o/w}):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	0,9 g/cm ³
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

4.5 mL decomposition tubes A (RA)

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	6-8
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient (K _{o/w}):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1,00 g/cm ³
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available



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9.2 Other information

9.2.1 Information on physical hazard classes

no data available

9.2.2 Other safety-related parameters

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.

☐☐

Substances are highly corrosive.

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

Persulfates decompose when heated by splitting off oxygen. Observe the storage temperature printed on it. No more required.

10.5 Incompatible materials

no additional data available

10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

SECTION 11: Toxicological information

11.1 Information on the hazard classes according regulation (EC) 1272/2008

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

4 g NanOx N Decomposition reagent

Chemical: *sodium carbonate*

CAS No.: 497-19-8

TSCA Inventory: listed

Korea Exist.Chem.Inventory: KE-31380

LD50 orl rat : 4090 mg/kg

LC₅₀ Low orl rat : 4000 mg/kg

LC50 ihl rat : 2,300 mg/L/2H

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

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



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Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
 Japan ISHL: listed $\geq 1,0\%$ / $\geq 1,0\%$, 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
 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 $\geq 1,0\%$ / $\geq 1,0\%$, 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 mus : 0,85 mg/L/4H
 TRGS 905 (DE): Kat 4

20x 14 mg NANOFIX Compensation reagent

Chemical: *sodium sulfite* CAS No.: 7757-83-7
 TSCA Inventory: listed
 Korea Exist.Chem.Inventory: KE-31612
 LD50 orl rat : 2610 mg/kg
 LC50 ihl rat : > 5,5 mg/L/4H

11 mL NO₃/N (R2)

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: not listed 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: not listed
 Korea Exist.Chem.Inventory: KE-29363
 LD50 orl rat : 5045 mg/kg
 LC_{Low} orl hmn : 3570 mg/kg
 LC50 ihl rat : 25 mg/L/4H
 TRGS 905 (DE): R F C

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 : 0,500 mg/L
 LD50 orl mus : 450 mg/kg



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4.5 mL decomposition tubes A (RA)

Chemical: *water*
 TSCA Inventory: listed
 Korea Exist.Chem.Inventory: KE-35400
 LD50 orl rat : > 90000 mg/kg

CAS No.: 7732-18-5

11.2 Other hazards

Possible endocrine disrupting effects

no data available

Other information

no additional data available

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

4 g NanOx N Decomposition reagent

Substance name: *sodium carbonate*
 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

CAS-Nr.: 497-19-8

Substance name: *potassium peroxydisulfate*
 Water hazard class (DE): 1 WGK No.: 1350
 Storage class (VCI): 5.1 B

CAS-Nr.: 7727-21-1

4 mL total Nitrogen TN b 220 (R0)

Substance name: *o-phosphoric acid*
 Do not release into the environment.
 LC50 fish/96h : 3-3.5 mg/L
 Water hazard class (DE): 1 WGK No.: 0392
 Storage class (VCI): 8 B

CAS-Nr.: 7664-38-2

Substance name: *sulfuric acid*
 Do not release into the environment.
 PNEC (fresh water) : 2.5 µg/L
 PNEC = Predicted No Effected Concentration = concentration at which no effect on the environment is expected
 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

CAS-Nr.: 7664-93-9

20x 14 mg NANOFIX Compensation reagent

Substance name: *sodium sulfite*
 LC50 fish/96h : 315 96h mg/L
 EC10 pseudomonas putita/16h : 260 17h mg/L
 Water hazard class (DE): 1 WGK No.: 0282
 Storage class (VCI): 12-13

CAS-Nr.: 7757-83-7

11 mL NO₃/N (R2)

Substance name: *2-propanol*
 PNEC (fresh water) : 140.9 mg/L
 PNEC = Predicted No Effected Concentration = concentration at which no effect on the environment is expected
 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
 Storage class (VCI): 3

CAS-Nr.: 67-63-0



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Substance name: *2,6-dimethylphenol* CAS-Nr.: 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
 Storage class (VCI): 6.1 C

4.5 mL decomposition tubes A (RA)
 Substance name: *water* CAS-Nr.: 7732-18-5

12.2 Persistence and degradability

12.3 Bioaccumulative potential

20x 14 mg NANOFIX Compensation reagent
 Substance name: *sodium sulfite* CAS-Nr.: 7757-83-7
 Dispersion coefficient (K_{o/w}): -4

11 mL NO₃/N (R2)
 Substance name: *2-propanol* CAS-Nr.: 67-63-0
 Dispersion coefficient (K_{o/w}): 0,05
 Substance name: *2,6-dimethylphenol* CAS-Nr.: 576-26-1
 Dispersion coefficient (K_{o/w}): 2,36

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

no data available

12.7 Other adverse effects

no additional data available

SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06).

13.1 Waste treatment methods

Not necessary, see above.

SECTION 14: Transport information

14.1. UN number: 3316
14.2. UN proper shipping name: Chemical Kit
14.3. Class: 9
14.4. Packing group: II
Road transport ADR
 Classification code: M11 Tunnel restriction code: E
 Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation
Air transport IATA DGR
 Limited Quantity: PAX: 960 max. quantity PAX: 10 KG
 CAO: 960 max. quantity CAO: 10 KG
Maritime transport IMDG
 EmS: F-A, S-P Staukategorie: A

Or use **Alternative declaration for transportation:**
 UN No.: (see below) UN 1993 class 3 II, class 8 II, **Excepted Quantities** (≤30 mL/Σ≤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



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Road transport ADR

Classification code: F1
 Limited Quantity: 1 L
 Excepted Quantity: E 2
 Special instructions: 640C
 Tunnel restriction code: E

Air transport IATA DGR

Limited Quantity: PAX: 353 max. quantity PAX: 5 L
 CAO: 364 max. quantity CAO: 60 L
 Excepted Quantity: E 2

Maritime transport IMDG

EmS: F-E, S-E Staukategorie: B
 Special instructions: 274

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 ADR

Classification code: O2
 Limited Quantity: 5 Kg
 Excepted Quantity: E 1
 Tunnel restriction code: E

Air transport IATA DGR

Limited Quantity: PAX: 559 max. quantity PAX: 25 Kg
 CAO: 563 max. quantity CAO: 100 Kg
 Excepted Quantity: E 1

Maritime transport IMDG

EmS: F-A, S-Q Staukategorie: B

Maritime pollutant (5.2.1.6): P* (Limited Quantity (LQ) until 5 L/kg per inner package)

14.1 UN number: 3264

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

14.3 Class: 8

14.4 Packing group: II

Road transport ADR

Classification code: C1
 Limited Quantity: 1 L
 Excepted Quantity: E 2
 Tunnel restriction code: E

Air transport IATA DGR

Limited Quantity: PAX: 851 max. quantity PAX: 1 L
 CAO: 855 max. quantity CAO: 30 L
 Excepted Quantity: E 2

Maritime transport IMDG

EmS: F-A, S-B Staukategorie: B
 Special instructions: 274

14.5 Environmental hazards

none, contains only small quantities of hazardous substances

14.6 Special precautions for user

not necessary

14.7 Carriage in bulk by sea in accordance with IMO instruments

Not applicable.



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SECTION 15: Regulatory information

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

Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020
 Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017
 TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017
 TRGS 220, National aspects when preparing safety data sheets, Jan 2017
 TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017
 TRGS 401, Skin contact hazard - identification, assessment, action, Jun 2008, status: Feb 2011
 BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012
 TRGS 500, Protective measures, Mai 2008
 TRGS 510, Storage of hazardous substances in portable containers from March 2013, status: Oct 2015
 Chapter 4, Measures when storing hazardous substances up to 50 kg (small quantity regulation)
 Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016
 MN leaflet/instructions for use, also at www.mn-net.com
 If necessary, observe other country-specific regulations.

15.2 Chemical safety assessment not necessary for these small amounts

SECTION 16: Other information

16.1 Changes compared to the last version

Between versions 2.4.3.16 and 2.2.2.2 following changes were applied: - 2 product component data corrected - 1 composition data corrected - 14 substance data corrected

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

H	Between versions 2.4.3.16 and 2.2.2.2 following changes were applied: - 2 product component data corrected - 1 composition data corrected - 14 substance data corrected
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.
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.

16.2.2 List of relevant P phrases

P260sh	Do not breathe dust/vapours.
P264	Wash hands thoroughly after handling.
P280sh	Wear protective gloves/eye protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.
P405	Store locked up.
P501	Dispose of contents/container to regulated waste treatment.

16.3 Recommended restriction on use

Only for professional user.
 Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!
 Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!
 An individual package of this product or test kit has a moderate hazardous potential.

16.4 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021
 Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres
 SUVA .CH, limit values in the air at work 2009, revised on 01/2009
 Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)
 Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG



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TRGS 907, German technical rules for listing substances and causes of sensitization, updated November 2011 Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)
 Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)
 Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)

Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progressText (11th ATP)
 Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)
 Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)
 TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019
 Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)
 Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG
 Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)
 Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)
 Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)
 Regulation 692/2022/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (18th ATP)

revisions/updates

Reason for revision: 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary
 2014-04 adjustment according Regulation 487/2013/EU
 2016-03 adjustment according Regulation 1221/2015/EU

 2017-11 adjustment according the ECHA registration dossier
 2022-11 adjustment according Regulation 878/2020/EU

16.5 Further information

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16.6 Legend / Abbreviations

acc:	according
ADR:	Convention concerning the International Carriage of Dangerous Goods by Road
Act:	acute
BAT:	biological workplace tolerance value
CAO:	Cargo Aircraft Only
Carc:	carcinogen
CAS:	Chemical Abstracts Service
CLP:	Classification, Labelling and Packaging regulation
CMR:	carcinogen, mutagen, reproduction toxic
Corr:	corrosive
COD:	chemical oxygen demand
CSCL:	Chemical Substance Control Law (Jp)
Dam:	damage
DNEL:	Derived No-Effect Level (for workers)
derm:	dermal
dog:	dog
EC10:	Concentration causing a toxic effect in 10% of the test organisms
EC:	European Community
EC-Nr:	Substance number of the EC substance inventory
EmS:	Guide to accident management measures on ships
EU:	European Union
fish:	fish (not spezified)
GHS:	Global Harmonized System of Classification and Labeling of Chemicals
gpg:	guinea pig
ICAO:	International Civil Aviation Organization
ihl:	inhaled
IMDG:	International Maritime Dangerous Goods Code
intrav:	intravenous
ipt:	intraperitoneal
ISHL:	Industrial Safety and Health Law (Jp)
LC50:	letale concentration 50%
LD50:	letale dosis 50%
leuciscus idus:	fisch, ide, orfe



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

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- MAK: maximum workplace concentration
- Met: Metall
- mus: mouse
- Muta: mutagen
- NIOSH: National Institute for Occupational Safety and Health (US)
- NRD: Non-rapidly degradable
- onchorhynchus mykiss: fish, rainbow trout
- orl: oral
- OSHA: Occupational Safety and Health Administration
- PAX: transport on passenger planes allowed
- PBT: persistent, bioaccumulating, toxic substance
- pH: pH value
- pimephales promelas: fish, fathead minnow
- PNEC: Predicted No Effect Concentration
- PROC 15: Process category 'for laboratory use'
- PRTR: Law for PRTR and Promotion of Chemical Management (Jp)
- PVC: polyvinyl chloride
- quail: bird, quail
- rat: rat
- rbt: rabbit
- RD: rapidly degradable
- RE: repeated
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- REF: item number, reference number
- Reg.No.: rRegistration number
- Repr: harmful to reproduction
- Resp: respiratory
- RIP: REACH Implementations Projects
- scu: sub cutan
- SDS: safety data sheet
- Sens: sensitisation
- STEL: short term exposure limit
- STOT: Specific Target Organ Toxicity
- SVHC: Substance of Very High Concern
- t/a: tons per year
- TCCA: Toxic Chemicals Control Act (S. Korea)
- Tox: toxic
- TSCA: The Toxic Substances Control Act (US)
- TWA: time weighted average
- TRGS: technical regulations (DE)
- vPvB: very persistent, very bioaccumulating substance

16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.

