

Safety Data Sheet

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

| | | |
|---------------------------|---------------------------------------|-------------------|
| REF: 985076 | NANOCOLOR ortho and total Phosphate 1 | Page: 1/14 |
| Printing date: 12.01.2023 | Date of issue: 26.09.2022 | Version: 2.2.4.16 |

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

1.1 Product identifier

REF 985076
 Product name NANOCOLOR ortho and total Phosphate 1

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 5 mL total Phosphate 1-45 (R4) | UFI: 7F7U-D3A4-W206-4K19 |
| 20 x 1 mL total Phosphate 1 (R0) | UFI: F67U-V37X-Y20Q-4J93 |
| 1 x 20x 35 mg NANOFIX total Phosphate 1-50 (R2) | UFI: 9M7U-D3PX-H206-F86E |
| 1 x 20x 27 mg NANOFIX total Phosphate 1-45 (R3) | |

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



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 | STOT SE 3 |

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

5 mL total Phosphate 1-45 (R4)



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GHS07

Signal word WARNING

| Hazard identification | Hazard classes/categories |
|-----------------------|---------------------------|
| H315 | Skin Irrit. 2 |
| H319 | Eye Irrit. 2 |

20x 27 mg NANOFIX total Phosphate 1-45 (R3)

Signal word Do not need labelling as hazardous
-

No hazard class

1 mL total Phosphate 1 (R0)



GHS07

Signal word WARNING

| Hazard identification | Hazard classes/categories |
|-----------------------|---------------------------|
| H315 | Skin Irrit. 2 |
| H319 | Eye Irrit. 2 |

20x 35 mg NANOFIX total Phosphate 1-50 (R2)



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 | STOT SE 3 |

List of H phrases: see section 16.2

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** 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 sensiblizing substances. Oxidizing mixtures with signal word: **DANGER** and **H272** must not be labelled with H and P phrases **until 125 mL** .

5 mL total Phosphate 1-45 (R4)



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GHS07

Signal word: WARNING

20x 27 mg NANOFIX total Phosphate 1-45 (R3)

Do not need labelling as hazardous

Signal word: -

1 mL total Phosphate 1 (R0)



GHS07

Signal word: WARNING

20x 35 mg NANOFIX total Phosphate 1-50 (R2)



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.

Label elements of the complete product



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

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

Information pertaining to particular risks to human and possible symptoms

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

PBT: not applicable

vPvB: not applicable

Possible endocrine disrupting effects

no data available

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SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

20x 27 mg NANOFIX total Phosphate 1-45 (R3)

Substance name: *L(+)-ascorbic acid*
CAS No.: 50-81-7

Substance rating: No criteria for classification or naming of chemical not required.
Formula: $C_6H_8O_6$
Pseudonym (de): Vitamin C
REACH Reg. No.: exempt, Annex IV
EC No.: 200-066-2
Concentration: 90 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

20x 35 mg NANOFIX total Phosphate 1-50 (R2)

Substance name: *sodium peroxodisulfate*
CAS No.: 7775-27-1

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, STOT SE 3
Formula: $Na_2O_8S_2$
Pseudonym (de): Natriumpersulfat
REACH Reg. No.: 01-2119495975-15-xxxx
EC No.: 231-892-1
Concentration: 80 - <100 %
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

1 mL total Phosphate 1 (R0)

Substance name: *sulfuric acid*
CAS No.: 7664-93-9

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

5 mL total Phosphate 1-45 (R4)

Substance name: *ammonium heptamolybdate*
CAS No.: 12054-85-2

Substance rating: No criteria for classification or naming of chemical not required.
Formula: $H_{24}Mo_7N_6O_{24}$
Pseudonym (de): Ammoniummolybdat
REACH Reg. No.: 01-2119498057-28-xxxx
EC No.: 234-722-4
Concentration: 2 - <5 %
Correlation factor: x 0.58 (= %Mo)
The classification refers to the weight percentage of the metal (according to CLP regulation 2008/1272/EG Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): The criteria for classification are not fulfilled.



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| | | | |
|-------------------|--|-------------|--------------|
| Substance name: | <i>sulfuric acid</i> | | |
| CAS No.: | 7664-93-9 | | |
| Substance rating: | H315, Skin Irrit. 2, H319, Eye Irrit. 2 | | |
| Formula: | H ₂ SO ₄ •H ₂ O | | |
| REACH Reg. No.: | 01-2119458838-20-xxxx | | |
| EC No.: | 231-639-5 | Indice No.: | 016-020-00-8 |
| Concentration: | 5 - <15 % | | |
| acc. CLP (GHS): | H315, Skin Irrit. 2, H319, Eye 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 16.2.

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. 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 with eye washing bottle, eye douche or running water (protect intact eye).

4.1.3 After INHALATION of vapours

After inhalation of foam or vapour fresh air should be inhaled. 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 should be drunk after it has been ingested.

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.

4.3 Indication of any immediate medical attention and special treatment needed

After SKIN CONTACT rinse with water for a long time. Apply glucocorticosteroides following inflammatory reactions. 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

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. 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

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 . Storage class (German chemical industry): see chapter 12.1

Storage class (VCI): 5.1B
Water hazard class (DE): 1

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage.

7.3 Specific end use(s)

Product for analytical use.

SECTION 8: Exposure controls /personal protection

8.1 Control parameters

20x 27 mg NANOFIX total Phosphate 1-45 (R3)

Chemical: *L(+)-ascorbic acid* CAS No.: 50-81-7

20x 35 mg NANOFIX total Phosphate 1-50 (R2)

Chemical: *sodium peroxodisulfate* CAS No.: 7775-27-1

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

1 mL total Phosphate 1 (R0)

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



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5 mL total Phosphate 1-45 (R4)

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2
 TRGS 900 (DE): [Mo] 5 E mg/m³
 E/e respirable
 SUVA(CH) MAK value: [Mo] 5 e mg/m³

Chemical: *sulfuric acid* CAS No.: 7664-93-9

DNEL: 50 µg/m³
 DNEL = Derived No-Effect Level (for workers)
 PNEC (fresh water): 2.5 µg/L
 PNEC = Predicted No Effect Concentration
 TRGS 900 (DE): 0.1 E mg/m³
 E/e respirable
 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: 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

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 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.

8.2.4 Skin protection

Recommended 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

20x 27 mg NANOFIX total Phosphate 1-45 (R3)

| | |
|--------------------------------------|---------------------|
| 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: | 5-6 |
| l) Kinematic viscosity: | no data available |
| m) Solubility in water: | 0-25 % |
| n) Dispersion coefficient (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 |



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20x 35 mg NANOFIX total Phosphate 1-50 (R2)

| | |
|--------------------------------------|---------------------|
| a) State of aggregation: | solid (lyophilized) |
| 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: | 0-100 % |
| n) Dispersion coefficient (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 |

1 mL total Phosphate 1 (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 (o/w) : | no data available |
| o) Vapour pressure (20°C): | no data available |
| p) Specific gravity: | 1,05 g/cm³ |
| q) Relative vapour density (air=1) : | no data available |
| r) Particle size: | no data available |

5 mL total Phosphate 1-45 (R4)

| | |
|--------------------------------------|-------------------|
| a) State of aggregation: | liquid |
| b) Colour: | slightly yellow |
| 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 |
| l) Kinematic viscosity: | no data available |
| m) Solubility in water: | 0-100 % |
| n) Dispersion coefficient (o/w) : | no data available |
| o) Vapour pressure (20°C): | no data available |
| p) Specific gravity: | 1,11 g/cm³ |
| q) Relative vapour density (air=1) : | no data available |
| r) Particle size: | no data available |



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9.2 Other information

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.
Properties relevant to substance groups

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

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.

20x 27 mg NANOFIX total Phosphate 1-45 (R3)

Chemical: *L(+)-ascorbic acid* CAS No.: 50-81-7
 TSCA Inventory: listed
 Korea Exist.Chem.Inventory: KE-01947
 LD50 orl rat : 11900 mg/kg

20x 35 mg NANOFIX total Phosphate 1-50 (R2)

Chemical: *sodium peroxodisulfate* CAS No.: 7775-27-1
 TSCA Inventory: listed California Proposition 65 List: not listed
 Australia NICNAS: Yes (PEC/18) Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
 Japan ISHL: listed $\geq 1,0\%$ / $\geq 0,1\%$, Article 57-2 (SDS required)
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-12369
 LD50 orl rat : 902 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.

1 mL total Phosphate 1 (R0)

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



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LC50 ihl mus : 0,85 mg/L/4H

TRGS 905 (DE): Kat 4

5 mL total Phosphate 1-45 (R4)

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2
 TSCA Inventory: listed (CAS 11098-84-3)
 Japan ISHL: listed $\geq 1,0\%$ / $\geq 0,1\%$,
 Korea Exist.Chem.Inventory: not listed
 LD50 orl rat : 2000-5000 mg/kg
 LD50 ihl rat : 1,930-5,840 mg/L/4H

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
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed, Japan PDSC: 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
 LD50 orl rat : 2140 mg/kg
 LC50 ihl mus : 0,85 mg/L/4H
 TRGS 905 (DE): R F C

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.

20x 27 mg NANOFIX total Phosphate 1-45 (R3)

Chemical: *L(+)-ascorbic acid* CAS No.: 50-81-7
 Water hazard class (DE): 1 WGK No.: 0737
 Storage class (VCI): 13

20x 35 mg NANOFIX total Phosphate 1-50 (R2)

Chemical: *sodium peroxodisulfate* CAS No.: 7775-27-1
 Water hazard class (DE): 1 WGK No.: 1352
 Storage class (VCI): 5.1 B

1 mL total Phosphate 1 (R0)

Chemical: *sulfuric acid* CAS No.: 7664-93-9
 PNEC (fresh water) : 2.5 µg/L
 PNEC = Predicted No Effect Concentration
 LC50 fish/96h : [NOEC, 65d] 25 µg/L
 EC50 daphnia/48h : 100 mg/L
 EC10 pseudomonas putida/16h : [72h] 100 mg/L
 Water hazard class (DE): 1 WGK No.: 0182
 Storage class (VCI): 8 B

5 mL total Phosphate 1-45 (R4)



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

Chemical: *sulfuric acid* CAS No.: 7664-93-9
 PNEC (fresh water): 2.5 µg/L
 PNEC = Predicted No Effect Concentration
 LC50 fish/96h: [NOEC, 65d] 25 µg/L
 EC50 daphnia/48h: 100 mg/L
 EC10 pseudomonas putida/16h: [72h] 100 mg/L
 Water hazard class (DE): 1 WGK No.: 0182
 Storage class (VCI): 8 B

12.2 Persistence and degradability

not necessary

12.3 Bioaccumulative potential

not necessary

12.4 Mobility in soil

not necessary

12.5 Results of PBT and vPvB assessment

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 - 14.4: No dangerous goods according the transport regulations because
 De Minimis (excepted quantities: $\leq 1 \text{ mL} / \sum \leq 100 \text{ mL}$) = ADR 3.5.1.4
 De Minimis (excepted quantities: $\leq 1 \text{ mL} / \sum \leq 100 \text{ mL}$) = IATA DRG 2.6.10

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

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



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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 2.2.4.16 and 2.2.2.2 following changes were applied: - 2 composition data corrected - 14 substance data corrected

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

- H272 May intensify fire; oxidizer.
- H302 Harmful if swallowed.
- 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.

16.2.2 List of relevant P phrases

- P261sh Avoid breathing dust/vapours.
- P280sh Wear protective gloves/eye protection.
- P342+311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

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 ArbSchG)!
 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
 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 1221/2015/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 progress (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)

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



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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 oxigen 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 |
| 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 |



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- 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.



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