

Material Safety Data Sheet

according to Directive 1907/2006/EC (REACH) and 453/2010/EU

Printing date: 25.02.2012

Date of issue: 21.02.2012

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1 Identification of the Substance/Mixture and of the Company

1.1 Identification/Product Name

REF 985081
 Product name NANOCOLOR total Phosphate 5

1 x 20x 27 mg NANOFIX total Phosphate 1-45 R3
 1 x 20x 35 mg NANOFIX total Phosphate 1-50 R2
 1 x 6 mL total Phosphate 1-45 R4
 20 x 5 mL total Phosphate 5/15 (tubes)

1.2 Use of the Substance/Mixture

Product for analytical use.
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0

1.3 Manufacturer

MACHEREY-NAGEL GmbH & Co. KG
 Neumann-Neander-Str. 6-8, 52355 Dueren, GERMANY
 Tel.: +49 2421 969 0 E-mail: msds@mn-net.com

1.4 Emergency Telephone

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

2 Hazard Identification

2.1 Hazard Symbols of Product

Directive 1999/45/EC
 Symbols



R
 Xn
 R 42/43

GHS Directive 1272/2008/EC
 GHS Symbols



GHS03 GHS07 GHS08

Signalword DANGER

Hazard identification **Hazard classes/categories**

H317 Skin Sens. 1A/1B
 H334 Resp. Sens. 1A/1B

2.2 Hazard Description

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 inhalation of vapours, 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

Other Hazards

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2.3 Hazard description of the components

20x 27 mg NANOFIX total Phosphate 1-45 R3

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

GHS Directive 1272/2008/EC

GHS Symbols do not need labelling as hazardous
Signalword do not need labelling as hazardous

No hazard class

20x 35 mg NANOFIX total Phosphate 1-50 R2

Directive 1999/45/EC

Symbols R 42/43



Xn

GHS Directive 1272/2008/EC

GHS Symbols



GHS03



GHS07



GHS08

Signalword DANGER

Hazard identification

Hazard classes/categories

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

6 mL total Phosphate 1-45 R4

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

GHS Directive 1272/2008/EC

GHS Symbols



GHS07

Signalword WARNING

Hazard identification

Hazard classes/categories

H315	Skin Irrit. 2
H319	Eye Irrit. 2

5 mL total Phosphate 5/15 (tubes)

Directive 1999/45/EC

Symbols - do not need labelling as hazardous

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GHS Directive 1272/2008/EC

GHS Symbols do not need labelling as hazardous
Signalword do not need labelling as hazardous

No hazard class

3 Composition/Information on Ingredients

3.1 Hazardous Components

20x 27 mg NANOFIX total Phosphate 1-45 R3

Chemical: *L(+)-ascorbic acid* CAS No.: 50-81-7
Concentration: 90 - 100 %
Formula: $C_6 H_8 O_6$
Pseudonym: vitamin C
REACH Reg. No.: exempt, Annex IV
EC No.: 200-066-2
RTECS: C17650000 MFCD: 00064328
TSCA listed: listed
acc. 1999/45/EC: - acc. CLP (GHS): not necessary

20x 35 mg NANOFIX total Phosphate 1-50 R2

Chemical: *sodium peroxodisulphate* CAS No.: 7775-27-1
Concentration: 20 - 100 %
Formula: $Na_2 O_8 S_2$
Pseudonym: sodium persulfate
EC No.: 231-892-1
RTECS: SE0525000
TSCA listed: listed
acc. 1999/45/EC: R 22-36/37/38-42/43-8 H335 acc. CLP (GHS): H272, H302, H315, H317, H319, H334,

6 mL total Phosphate 1-45 R4

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2
Concentration: 1 - 5 %
Formula: $H_{24} Mo_7 N_6 O_{24}$
Pseudonym: ammonium molybdate
EC No.: 234-722-4
RTECS: QA5076000 / QA4900000 MFCD: MFCD00167059
TSCA listed: listed
acc. 1999/45/EC: - acc. CLP (GHS): not necessary

Chemical: *sulphuric acid* CAS No.: 7664-93-9
Concentration: 5 - 15 %
Formula: $H_2 SO_4$
REACH Reg. No.: 01-2119458838-20
EC No.: 231-639-5 Indice No.: 016-020-00-8
RTECS: WS5600000
TSCA listed: listed
acc. 1999/45/EC: R 36/38 acc. CLP (GHS): H315, H319

5 mL total Phosphate 5/15 (tubes)

Chemical: *sulphuric acid* CAS No.: 7664-93-9
Concentration: 1 - 5 %
Formula: $H_2 SO_4$
REACH Reg. No.: 01-2119458838-20
EC No.: 231-639-5 Indice No.: 016-020-00-8
RTECS: WS5600000
TSCA listed: listed
acc. 1999/45/EC: - acc. CLP (GHS): not necessary

3.2 Remarks

List of R and H phrases: see chapter 16



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4 First Aid Measures

4.1 General Information

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 Further Medical Treatment/Attention

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.

5 Fire-fighting Measures

5.1 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.

5.2 Hazards, Combustion Products/Gases

Formation of hazardous and caustic vapour-air mixtures possible.

Danger for environment **only in the event of a large-scale leakage** or formation of hazardous substances.

5.3 Special Protective Equipment required

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

Product package burns like paper or plastic. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.

6 Accidental Release Measures

6.1 Personal Precautions

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 Methods of Cleaning-up

Bind any escaping liquid with universal binder. 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.

7 Handling and Storage

7.1 Handling

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

7.2 Storage

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

Storage class (German chemical industry): see chapter 12.1

7.2.1 Requirements for Stock Rooms and Containers

Keep original product packages tightly closed during handling and storage.

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8 Exposure Controls/Personal Protection

8.1 Exposure Limit Values

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 peroxodisulphate*

CAS No.: 7775-27-1

6 mL total Phosphate 1-45 R4

Chemical: *ammonium heptamolybdate*

CAS No.: 12054-85-2

TRGS 900 (DE): $5_{Mo} E \text{ mg/m}^3$

SUVA(CH) MAK value: $5_{Mo} e \text{ mg/m}^3$

Chemical: *sulphuric acid*

CAS No.: 7664-93-9

TRGS 900 (DE): 0.1 E mg/m^3

TRGS 901 (DE): 104

SUVA(CH) MAK value: 0,1 e mg/m^3

TRGS 905 (DE): R_F C

5 mL total Phosphate 5/15 (tubes)

Chemical: *sulphuric acid*

CAS No.: 7664-93-9

TRGS 900 (DE): 0.1 E mg/m^3

TRGS 901 (DE): 104

SUVA(CH) MAK value: 0,1 e mg/m^3

TRGS 905 (DE): R_F C

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

Only if additional recommendations in test instruction or packing insert. Use for open access of these substances for example a protection filter, class A/AX.

8.2.2 Hand Protection

Yes, gloves according EN 374. Use for short times all chemical resistant gloves (limited).

8.2.3 Eye Protection

Yes, safety glasses according EN 166.

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.

9 Physical and Chemical Properties

9.1 General Information

20x 27 mg NANOFIX total Phosphate 1-45 R3

Color: colourless

Odor: odorless

Appearance: solid (lyoph.)

20x 35 mg NANOFIX total Phosphate 1-50 R2

Color: colourless

Odor: odorless

Appearance: solid (lyoph.)

6 mL total Phosphate 1-45 R4

Color: slightly yellow

Odor: odorless

Appearance: liquid

5 mL total Phosphate 5/15 (tubes)

Color: colourless

Odor: odorless

Appearance: liquid

9.2 Important Health, Safety and Environmental Information

9.2.1 Safety relevant Basis Data

20x 27 mg NANOFIX total Phosphate 1-45 R3

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pH: 5-6
 specific gravity: no data available
 solubility in water: 0-25 %

20x 35 mg NANOFIX total Phosphate 1-50 R2

pH: 5-7
 specific gravity: no data available
 solubility in water: 0-100 %

6 mL total Phosphate 1-45 R4

pH: 0
 specific gravity: 1,11 g/cm³
 solubility in water: 0-100 %

5 mL total Phosphate 5/15 (tubes)

pH: 0-1
 specific gravity: 1,01 g/cm³
 solubility in water: 0-100 %

9.2.2 Relevant Properties of Substance Group

9.3 Additional Information

10 Stability and Reactivity

10.1 Conditions to avoid

If on label. When indicated in packing insert.

10.2 Materials to avoid

Avoid contact with strong acids or alkalines.

10.3 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.

11 Toxicological Information

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

20x 27 mg NANOFIX total Phosphate 1-45 R3

Chemical:	<i>L(+)-ascorbic acid</i>	CAS No.: 50-81-7
LD50 _{orl rat} :	11900 mg/kg	
LD50 _{ivn mus} :	518 mg/kg	

20x 35 mg NANOFIX total Phosphate 1-50 R2

Chemical:	<i>sodium peroxodisulphate</i>	CAS No.: 7775-27-1
LD50 _{orl rat} :	no data available	

6 mL total Phosphate 1-45 R4

Chemical:	<i>ammonium heptamolybdate</i>	CAS No.: 12054-85-2
LD50 _{orl rat} :	no data available	

Chemical:	<i>sulphuric acid</i>	CAS No.: 7664-93-9
LD50 _{orl rat} :	2140 mg/kg	
LC50 _{ihl mouse} :	320 _{4h} mg/L	
LC50 _{ihl rat} :	510 mg/m ³	

5 mL total Phosphate 5/15 (tubes)

Chemical:	<i>sulphuric acid</i>	CAS No.: 7664-93-9
LD50 _{orl rat} :	2140 mg/kg	
LC50 _{ihl mouse} :	320 _{4h} mg/L	
LC50 _{ihl rat} :	510 mg/m ³	



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12 Ecological Information

12.1 Ecotoxicity

Following information is valid for pure chemicals.

20x 27 mg NANOFIX total Phosphate 1-45 R3

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

20x 35 mg NANOFIX total Phosphate 1-50 R2

Chemical: *sodium peroxodisulphate* CAS No.: 7775-27-1
 WGK (DE): 1 WGK No.: 1352
 storage class (VCI): 5.1 B

6 mL total Phosphate 1-45 R4

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

Chemical: *sulphuric acid* CAS No.: 7664-93-9
 LC50_{fish/96h}: 16-29 mg/L
 EC50_{daphnia/48h}: 29_{24h} mg/L
 WGK (DE): 1 WGK No.: 0182
 storage class (VCI): 8 B

5 mL total Phosphate 5/15 (tubes)

Chemical: *sulphuric acid* CAS No.: 7664-93-9
 LC50_{fish/96h}: 16-29 mg/L
 EC50_{daphnia/48h}: 29_{24h} mg/L
 WGK (DE): 1 WGK No.: 0182
 storage class (VCI): 8 B

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).

Normally it is possible to empty small amounts (diluted!) into drains.

Dispose of contents/container to regulated waste treatment.

14 Transport Information

UN No.: (see below) Class 8 II, **excepted quantities** (≤ 30 mL/ $\Sigma \leq 500$ mL) = ADR/ IATA E2 or

15 Regulatory Information

15.1 International Regulations

According 1999/45/EC small amounts of harmful and highly flammable preparations/mixtures have partly/completely exemption from labelling (no symbols F, O, Xn, Xi, N and no R and S phrases are necessary) until **25-125 mL/g**. This labelling exemption is NOT valid for sensibilizing mixtures.

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

Harmful chemicals/mixtures with signalword: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P phrases **until 125 mL** or **125 g**. This labelling exemption is NOT valid for sensibilizing substances.

Oxidizing mixtures with signalword: **DANGER** and **H272** must not be labelled with H and P phrases **until 125 mL**.

20x 27 mg NANOFIX total Phosphate 1-45 R3

Directive 1999/45/EC

Symbols:

-

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GHS Directive 1272/2008/EC

GHS Symbols:
do not need labelling as hazardous
Signalword: -

20x 35 mg NANOFIX total Phosphate 1-50 R2

Directive 1999/45/EC

Symbols:



Xn

R 42/43

May cause sensitization by inhalation and skin contact.

S 22-26-37

Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves.

GHS Directive 1272/2008/EC

GHS Symbols:



GHS03



GHS07



GHS08

Signalword: DANGER

H317, H334

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

P261S, P280sh, P302+352, P304+341, P333+313, P342+311, P363

Avoid breathing dust. Wear protective gloves/eye protection. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If skin irritation or rash occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.

6 mL total Phosphate 1-45 R4

Directive 1999/45/EC

Symbols:

-

-

S 26

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

GHS Directive 1272/2008/EC

GHS Symbols:



GHS07

Signalword: WARNING

5 mL total Phosphate 5/15 (tubes)

Directive 1999/45/EC

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Symbols:

-
-

GHS Directive 1272/2008/EC

GHS Symbols:

do not need labelling as hazardous

Signalword: -

15.2 National Regulations

German act governing protection from hazardous substances (Chemicals Act / Chemikaliengesetz- ChemG), revised on May 2008
 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 December 2009
 Announcement BekGS 220 (DE), Safety Data Sheet, September 2007 updated May 2009

16 Other Information

16.1 List of R and H phrases

16.1.1 List of relevant R phrases

R22	Harmful if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R36/38	Irritating to eyes and skin.
R42/43	May cause sensitization by inhalation and skin contact.
R8	Contact with combustible material may cause fire.

16.1.2 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 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. DE § 22 JArbSchG)!

Look about employee restrictions for pregnant women and nursing women (f.ex. DE §§ 4 und 5 MuSchRiv)!

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

TRGS 900, German engineering rules governing limits in air at work, updated May 2010

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 October 2002

KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

You find our current versions of MSDS in Internet:

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