Section 1: Identification

1.1 Product Identifier / Product Name

REF 934123
Product Name Photometer PF-3 Drinking Water
-

1 x Calibration tube (5 mL)
3 x Alkaline Manganese Batteries Type AA
1 x Button cell CR2032, built-in
1 x 17 mL Fe-1
1 x 5 g Fe-2
3 x 50 capsules NANOFIX pH 6.5-8.2
1 x 20 mL Cl_2 -2
1 x 28 g Cl_2 -1

1.2 Relevant identified Uses of the Substance or Mixture and Uses advised against

Relevant identified uses
Product for Analytical Use.
The Exposure scenario is integrated into sections 1-16.
Uses advised against
not described

1.3 Details of the Supplier and of the Safety Data Sheet

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

1.4 Emergency Telephone Number

Information not necessary.

You find our current versions of SDS (22 languages) in Internet: **http://www.mn-net.com/SDS**

Section 2: Hazard(s) Identification

2.0 Classification of the complete Product

-

2.1 Classification of the Substance(s) or Mixture(s)

Calibration tube (5 mL)

Do not need labelling as hazardous
Signal Word -

No Hazard Class

Alkaline Manganese Batteries Type AA

Do not need labelling as hazardous
Signal Word -

No Hazard Class

Button cell CR2032, built-in

Do not need labelling as hazardous
Signal Word -

No Hazard Class

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

17 mL Fe-1

Do not need labelling as hazardous
Signal Word -

No Hazard Class

5 g Fe-2

Do not need labelling as hazardous
Signal Word -

No Hazard Class

50 capsules NANOFIX pH 6.5-8.2

Do not need labelling as hazardous
Signal Word -

No Hazard Class

20 mL Cl_2 -2

Do not need labelling as hazardous
Signal Word -

No Hazard Class

28 g Cl_2 -1

Do not need labelling as hazardous
Signal Word -

No Hazard Class

2.2 Safety, Health and Environmental Regulations/Legislation specific for the Substance or Mixture

Calibration tube (5 mL)

Do not need labelling as hazardous
Signal Word: -

Alkaline Manganese Batteries Type AA

Do not need labelling as hazardous
Signal Word: -

Button cell CR2032, built-in

Do not need labelling as hazardous
Signal Word: -

17 mL Fe-1

Do not need labelling as hazardous
Signal Word: -

5 g Fe-2

Do not need labelling as hazardous
Signal Word: -

50 capsules NANOFIX pH 6.5-8.2

Do not need labelling as hazardous

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

Signal Word: -

20 mL Cl_2 -2

Do not need labelling as hazardous
Signal Word: -

28 g Cl_2 -1

Do not need labelling as hazardous
Signal Word: -

2.3 Other Hazards

Possible Hazards from physicochemical Properties

The property «Causes severe skin burns and eye damage.» of some salts is not relevant, because the mixtures are buffered to pH >3-4. According to our current status of knowledge and experience we state, that this product does not contain any substances, which - in accordance with GHS directives and EC regulations 1272/2008/EC, 1907/2006/EC for Hazardous goods - have to be declared as dangerous goods, either because of their applied concentration or because of their total amount in anyone kit.
An individual package has considerably less hazardous potential. ---

Information pertaining to particular Risks to Human and possible Symptoms
---

Information pertaining to particular Risks to the Environment
---

Other Hazards
This SDS contains information on shipping and transport safety. ---

Section 3: Composition/Information on Ingredients

3.1 Substances or 3.2 Mixtures

Calibration tube (5 mL)

Chemical: *water* — CAS No.: 7732-18-5
Classification: No criteria for classification or naming of chemical is not required.
Chemical Formula: H_2O
TSCA Inventory: listed
RTECS: ZC0110000
EC No.: 231-791-2
Weight Percent: 90 - <100 %
acc. GHS: The criteria for classification are not fulfilled.

Alkaline Manganese Batteries Type AA

Chemical: *alkaline manganese battery* — CAS No.: -
Classification: No criteria for classification or naming of chemical is not required.
Weight Percent: 99 - <100 %
acc. GHS: The criteria for classification are not fulfilled.

Button cell CR2032, built-in

Chemical: *Button cell on circuit board (lithium metal battery)* — CAS No.: -
Classification: No criteria for classification or naming of chemical is not required.
Weight Percent: 99 - <100 %
acc. GHS: The criteria for classification are not fulfilled.

17 mL Fe-1

Chemical: *triazine derivate* — CAS No.: -
Classification: No criteria for classification or naming of chemical is not required.
TSCA Inventory: listed
Weight Percent: < 1,00 %
acc. GHS: The criteria for classification are not fulfilled.

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

Chemical: *acetate buffer solution* CAS No.: -
Classification: No criteria for classification or naming of chemical is not required.
Chemical Formula: $CH_3COOH/K/Na•H_2O$
TSCA Inventory: all listed
Weight Percent: 45 - <60 %
acc. GHS: The criteria for classification are not fulfilled.

5 g Fe-2

Chemical: *L(+)-ascorbic acid* CAS No.: 50-81-7
Classification: No criteria for classification or naming of chemical is not required.
Chemical Formula: $C_6H_8O_6$
Synonyms: vitamin C
TSCA Inventory: listed
RTECS: CI7650000 MFCD: 00064328
EC No.: 200-066-2
Weight Percent: 20 - <30 %
acc. GHS: The criteria for classification are not fulfilled.

Chemical: *sodium chloride* CAS No.: 7647-14-5
Classification: No criteria for classification or naming of chemical is not required.
Chemical Formula: NaCl
Synonyms: salt
TSCA Inventory: listed
RTECS: VZ4725000
EC No.: 231-598-3
Weight Percent: 50 - <80 %
acc. GHS: The criteria for classification are not fulfilled.

50 capsules NANOFIX pH 6.5-8.2

Chemical: *phenolred, sodium salt (pH indicator)* CAS No.: 34487-61-1
Classification: H315, Skin Irrit. 2, H319, Eye Irrit. 2
Chemical Formula: $C_{19}H_{13}NaO_5S$
Synonyms: 4,4'-(1,1-dioxido-3H-2,1-benzoxathiol-3-ylidene)bis-phenol, sodium salt
TSCA Inventory: listed MFCD: 00066901
EC No.: 252-057-8
Weight Percent: 1 - <10 %
acc. GHS: The criteria for classification are not fulfilled.

20 mL Cl_2 -2

Chemical: *potassium iodide* CAS No.: 7681-11-0
Classification: H319, Eye Irrit. 2
Chemical Formula: KI
TSCA Inventory: listed
RTECS: TT29750000 MFCD: 00011405
EC No.: 231-659-4
Weight Percent: 1 - <10 %
acc. GHS: The criteria for classification are not fulfilled.

28 g Cl_2 -1

Chemical: *boric acid* CAS No.: 10043-35-3
Classification: H360FD, Repr. 1B
Chemical Formula: H_3BO_3
TSCA Inventory: listed
RTECS: ED4550000 MFCD: 00011337
EC No.: 233-139-2 Indice No.: 005-007-00-2
Weight Percent: 0,5 - <5,5 % Correlation Factor: x 0.17 (= %B)
acc. GHS: The criteria for classification are not fulfilled.

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3
Classification: No criteria for classification or naming of chemical is not required.
Chemical Formula: $C_6H_5Na_3O_7•2H_2O$
TSCA Inventory: listed (CAS 68-04-2)
RTECS: GE8300000
EC No.: 200-675-3
Weight Percent: 40 - <60 %
acc. GHS: The criteria for classification are not fulfilled.

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

Chemical:	*N,N-Diethyl-1,4-phenylene diammonium sulfate*		CAS No.: 6283-63-2
Classification:	H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm.		
Chemical Formula:	$C_{10}H_{16}N_2 \cdot H_2O$		
Synonyms:	N,N-diethylbenzene-1,4-diammonium sulfate		
TSCA Inventory:	listed (CAS 6065-27-6)		
RTECS:	SS9625000	MFCD:	00012993
EC No.:	228-500-6	Indice No.:	612-080-00-X
Weight Percent:	1 - <5 %		
acc. GHS:	The criteria for classification are not fulfilled.		

Chemical:	*potassium dihydrogen phosphate*		CAS No.: 7778-77-0
Classification:	No criteria for classification or naming of chemical is not required.		
Chemical Formula:	KH_2PO_4		
TSCA Inventory:	listed		
RTECS:	TC6615500	MFCD:	00011401
EC No.:	231-913-4		
Weight Percent:	5 - <25 %		
acc. 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%.

- - -

Section 4: First-Aid Measures

4.1 Description of First-Aid Measures

Place insured person out of danger zone to fresh air immediately.

4.1.1 After SKIN Contact
Not necessary.

4.1.2 After EYE Contact
Not necessary.

4.1.3 After INHALATION of Vapors
Not necessary.

4.1.4 After ORAL Intake
Not necessary.

4.2 Most important Symptoms and Effects, both acute and delayed

---

4.3 Indication of any immediate Medical Attention and Special Treatment needed

No additionally recommendations. ---

Section 5: Fire-Fighting Measures

5.1 Extinguishable 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 WATER FOG, WATER SPRAY, alcohol-resistant FOAM, DRY CHEMICAL, CARBON DIOXIDE can be used.

5.2 Special Hazards arising from the Substance or Mixture

None.

5.3 Advice for Firefighters

No, for listed product. Product package burns like paper or plastic.

5.4 Additional Information

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany

DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedure

Not necessary.

6.2 Environmental Precautions

not necessary

6.3 Methods and Material for Containment and Cleaning up

Clean working area with water. Flush used water into sewer.

6.4 Reference to other Sections

Section 7: Handling and Storage

7.1 Precautions for Safe Handling

Handling in accordance with the test instruction, that comes with the product.

7.2 Conditions for Safe Storage, including any Incompatibilities

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

Storage class (VCI):	6.1D
Water hazard class (DE):	3

7.2.1 Conditions for Safe Storage, including any Incompatibilities

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

Calibration tube (5 mL)
Chemical: *water* — CAS No.: 7732-18-5

Alkaline Manganese Batteries Type AA
Chemical: *alkaline manganese battery* — CAS No.: -

Button cell CR2032, built-in
Chemical: *Button cell on circuit board (lithium metal battery)* — CAS No.: -

17 mL Fe-1
Chemical: *triazine derivate* — CAS No.: -

Chemical: *acetate buffer solution* — CAS No.: -

5 g Fe-2
Chemical: *L(+)-ascorbic acid* — CAS No.: 50-81-7

Chemical: *sodium chloride* — CAS No.: 7647-14-5

50 capsules NANOFIX pH 6.5-8.2
Chemical: *phenolred, sodium salt (pH indicator)* — CAS No.: 34487-61-1

20 mL Cl_2 -2
Chemical: *potassium iodide* — CAS No.: 7681-11-0

28 g Cl_2 -1
Chemical: *boric acid* — CAS No.: 10043-35-3
DNEL: [derm] 392 mg/kg bw/day; [inh] 8.3 mg/m³
DNEL = Derived No-Effect Level (for workers)
$PNEC_{(fresh\ water)}$: 2.9 mg/L
PNEC = Predicted No Effected Concentration
NIOSH: not listed

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany

DE / international:	CH:	FR:	US:
Tel.: +49 24 21 969-0	Tel.: +41 62 388 55 00	Tel.: +33 388 68 22 68	Tel.: +1 484 821 0984
Fax: +49 24 21 969-199	Fax: +41 62 388 55 05	Fax: +33 388 51 76 88	Fax: +1 484 821 1272
E-mail: info@mn-net.com	E-mail: sales-ch@mn-net.com	E-mail: sales-fr@mn-net.com	E-mail: sales-us@mn-net.com

MACHEREY-NAGEL ISO 9001 CERTIFIED

[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

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2
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

Chemical: *potassium dihydrogen phosphate* CAS No.: 7778-77-0

8.2 Exposure Controls

Not necessary.

8.2.1 Respiratory Protection
Not necessary.

8.2.2 Hand Protection
Not necessary.

8.2.3 Eye/Face Protection
Not necessary.

8.2.4 Skin Protection
Not necessary.

8.2.5 Hygiene Measures
Information not necessary.

Section 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Calibration tube (5 mL)

a)	Appearance: liquid	Color: colorless	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	6-8	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	data not available	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	data not available	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	1,00 g/cm³	
n)	Soluble in Water:	data not available	
o)	Partition Coefficient (o-w):	data not available	
p)	Autoignition Temperature:	data not available	
q)	Decomposition temperature:	data not available	
r)	Viscosity:	data not available	
s)	Explosive properties:	data not available	
t)	Oxidizing properties:	---	

Alkaline Manganese Batteries Type AA

a)	Appearance: solid	Color: black	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	data not available	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	data not available	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	data not available	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	data not available	

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

n)	Soluble in Water:	data not available
o)	Partition Coefficient (o-w):	data not available
p)	Autoignition Temperature:	data not available
q)	Decomposition temperature:	data not available
r)	Viscosity:	data not available
s)	Explosive properties:	data not available
t)	Oxidizing properties:	---

Button cell CR2032, built-in

a)	Appearance: solid	Color: colored	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	data not available	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	data not available	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	Do not transport damaged batteries. Special instruction necessary	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	data not available	
n)	Soluble in Water:	data not available	
o)	Partition Coefficient (o-w):	data not available	
p)	Autoignition Temperature:	data not available	
q)	Decomposition temperature:	data not available	
r)	Viscosity:	data not available	
s)	Explosive properties:	data not available	
t)	Oxidizing properties:	---	

17 mL Fe-1

a)	Appearance: liquid	Color: slightly yellow	b) Odor: acetic
c)	Odor Threshold:	data not available	
d)	pH:	4-6	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	data not available	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	data not available	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	data not available	
n)	Soluble in Water:	data not available	
o)	Partition Coefficient (o-w):	data not available	
p)	Autoignition Temperature:	data not available	
q)	Decomposition temperature:	data not available	
r)	Viscosity:	data not available	
s)	Explosive properties:	data not available	
t)	Oxidizing properties:	---	

5 g Fe-2

a)	Appearance: powder (solid)	Color: slightly yellow	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	data not available	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	data not available	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	data not available	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	data not available	
n)	Soluble in Water:	data not available	
o)	Partition Coefficient (o-w):	data not available	
p)	Autoignition Temperature:	data not available	
q)	Decomposition temperature:	data not available	

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany

DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

r)	Viscosity:	data not available
s)	Explosive properties:	data not available
t)	Oxidizing properties:	---

50 capsules NANOFIX pH 6.5-8.2

a)	Appearance: solid (lyoph.)	Color: red	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	7,0	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	data not available	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	data not available	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	data not available	
n)	Soluble in Water:	0-100 %	
o)	Partition Coefficient (o-w):	data not available	
p)	Autoignition Temperature:	data not available	
q)	Decomposition temperature:	data not available	
r)	Viscosity:	data not available	
s)	Explosive properties:	data not available	
t)	Oxidizing properties:	---	

20 mL Cl_2 -2

a)	Appearance: liquid	Color: colorless	b) Odor: alcoholic
c)	Odor Threshold:	data not available	
d)	pH:	9	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	24 °C	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	data not available	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	0,93 g/cm³	
n)	Soluble in Water:	0-100 %	
o)	Partition Coefficient (o-w):	data not available	
p)	Autoignition Temperature:	data not available	
q)	Decomposition temperature:	data not available	
r)	Viscosity:	data not available	
s)	Explosive properties:	data not available	
t)	Oxidizing properties:	---	

28 g Cl_2 -1

a)	Appearance: powder (solid)	Color: colorless	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	6	
e)	Melting Point:	data not available	
f)	Boiling Point:	data not available	
g)	Flash Point:	data not available	
h)	Evaporation Rate$_{(ether=1)}$:	data not available	
i)	Flammability (solid, gas):	data not available	
j)	Explosive Limits:	data not available	
k)	Vapor Pressure (68°F):	data not available	
l)	Vapor Density$_{(air=1)}$:	data not available	
m)	Specific Gravity:	data not available	
n)	Soluble in Water:	0-100 %	
o)	Partition Coefficient (o-w):	data not available	
p)	Autoignition Temperature:	data not available	
q)	Decomposition temperature:	data not available	
r)	Viscosity:	data not available	
s)	Explosive properties:	data not available	
t)	Oxidizing properties:	---	

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany

DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

9.2 Other Information

Relevant Properties of Substance Group

Section 10: Stability and Reactivity

10.1 Reactivity

None

10.2 Chemical Stability

No known instability.

10.3 Possibility of Hazardous Reactions

None.

10.4 Conditions to avoid

Not known. ---

10.5 Incompatible Materials

Not necessary. ---

10.6 Hazardous Decomposition Products

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

Section 11: Toxicological Information

11.1 Information on Toxicological Effects

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

Calibration tube (5 mL)

Chemical: *water* CAS No.: 7732-18-5
TSCA Inventory: listed

Alkaline Manganese Batteries Type AA

Chemical: *alkaline manganese battery* CAS No.: -

Button cell CR2032, built-in

Chemical: *Button cell on circuit board (lithium metal battery)* CAS No.: -

17 mL Fe-1

Chemical: *triazine derivate* CAS No.: -
TSCA Inventory: listed

Chemical: *acetate buffer solution* CAS No.: -
TSCA Inventory: all listed

5 g Fe-2

Chemical: *L(+)-ascorbic acid* CAS No.: 50-81-7
TSCA Inventory: listed
$LD50_{orl\ rat}$: 11900 mg/kg
$LD50_{ivn\ mus}$: 518 mg/kg

Chemical: *sodium chloride* CAS No.: 7647-14-5
TSCA Inventory: listed
$LD50_{orl\ rat}$: 3000 mg/kg
$LD50_{drm\ rbt}$: 10 g/kg

50 capsules NANOFIX pH 6.5-8.2

Chemical: *phenolred, sodium salt (pH indicator)* CAS No.: 34487-61-1
TSCA Inventory: listed

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany

DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

20 mL Cl_2 -2

Chemical: *potassium iodide* CAS No.: 7681-11-0
TSCA Inventory: listed
$LD50_{orl\ rat}$: 2779 mg/kg

28 g Cl_2 -1

Chemical: *boric acid* CAS No.: 10043-35-3
TSCA Inventory: listed California Prop. 65 List: not listed
Canada CEPA 1999: DSL yes
$LD50_{orl\ rat}$: >3765 mg/kg
$LC50_{ihl\ rat}$: > 2 mg/m³
$LD50_{drm\ rat}$: >2000 mg/kg

EU carcinogen: R_D 1B, R_F 1B

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3
TSCA Inventory: listed (CAS 68-04-2)
$LD50_{orl\ rat}$: >8000 mg/kg

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2
TSCA Inventory: listed (CAS 6065-27-6) California Prop. 65 List: not listed
Canada CEPA 1999: not listed
$LD50_{orl\ rat}$: 497 mg/kg

Chemical: *potassium dihydrogen phosphate* CAS No.: 7778-77-0
TSCA Inventory: listed
$LD50_{orl\ rat}$: 4640 mg/kg
$LD50_{drm\ rbt}$: >4640 mg/kg

Section 12: Ecological Information

12.1 Toxicity

Following information is valid for pure chemicals.

Calibration tube (5 mL)
Chemical: *water* CAS No.: 7732-18-5

Alkaline Manganese Batteries Type AA
Chemical: *alkaline manganese battery* CAS No.: -

Button cell CR2032, built-in
Chemical: *Button cell on circuit board (lithium metal battery)* CAS No.: -

17 mL Fe-1
Chemical: *triazine derivate* CAS No.: -

Chemical: *acetate buffer solution* CAS No.: -

5 g Fe-2
Chemical: *L(+)-ascorbic acid* CAS No.: 50-81-7

Chemical: *sodium chloride* CAS No.: 7647-14-5

50 capsules NANOFIX pH 6.5-8.2
Chemical: *phenolred, sodium salt (pH indicator)* CAS No.: 34487-61-1

20 mL Cl_2 -2
Chemical: *potassium iodide* CAS No.: 7681-11-0
$LC50_{fish/96h}$: 2190 mg/L
Partition Coefficient (o-w): 0.04

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

28 g Cl_2 -1

Chemical: *boric acid* CAS No.: 10043-35-3
PNEC$_{(fresh\ water)}$: 2.9 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: [4d] 79.7 mg/L
$EC50_{daphnia/48h}$: 91-165 mg/L
$IC50_{scenedesmus\ quadricauda/72h}$: [72h] 52.4 mg/L
$EC10_{pseudomonas\ putita/16h}$: [EC10] 10 mg/L
Partition Coefficient (o-w): -1.09

Chemical: *tri-sodium citrate* CAS No.: 6132-04-3
$LC50_{fish/96h}$: 18-32 g/L
$EC50_{daphnia/48h}$: 5.6-10 g/L
$EC50_{chlorella\ vulgaris/5d}$: >18-32 g/L
$EC10_{pseudomonas\ putita/16h}$: $EC50_{ps.\ fluorescens/8h}$: >1.8-3.2 g/L

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2

Chemical: *potassium dihydrogen phosphate* CAS No.: 7778-77-0
$LC50_{leuciscus\ idus/96h}$: 900_{48h} mg/L

12.2 Persistence and Degradability
not necessary

12.3 Bioaccumulative Potential
not necessary

12.4 Mobility in Soil
not necessary

12.5 Results of PBT and vPvB Assessment
no data available

12.6 Other Adverse Effects
no additional data available

Section 13: Disposal Considerations
Batteries must be collected separately and disposed acc. law regulations (electronic waste, f. ex. in EU WEEE). Further:
Not necessary.

13.1 Waste Treatment Methods
GENERAL: Empty solids into municipal waste, empty liquids diluted into drains. Normally it is possible to empty small amounts (diluted!) into drains.

Section 14: Transport Information
14.1 - 14.4: No dangerous goods according the Transport regulations
Lithium metal batteries in equipment, not restricted, PI 970: Section II (button cell), No entry in AWB necessary

14.5 Environmental Hazards
none

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
U.S. Federal Regulations
OSHA "A Guide to The Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"
https://www.osha.gov/dsg/hazcom/ghs.html
29 CFR 1910.1200 Hazard communication.
MN Leaflet/User manual, also see www.mn-net.com

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

15.2 Chemical Safety Assessment

Section 16: Other Information

16.1 List of Hazard and Precaution Phrases

16.1.1 List of relevant H Phrases

16.1.2 List of relevant P Phrases

16.2 Training Advice

Regular safety training.

16.3 Recommended Restriction on Use

None

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.
MACHEREY-NAGEL GmbH & Co. KG makes NO REPRESENTATIONS or WARRANTIES, either expressed or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly MACHEREY-NAGEL GmbH & Co. KG will not be responsible for damages resulting from use of or reliance upon this information. See terms and conditions at the end of our price lists for additional information.

16.5 Sources of Key Data

GHS: EU Regulation 1272/2008/EC on Classification, Labelling and Packaging of Substances and Mixtures, amending and repealing EU Directives 67/548/EEC and 1999/45/EC, and amending EU Regulation 1907/2006/EC
SDS: EU Regulation 453/2010/EU REACH - Requirements for the Compilation of Safety Data Sheets
KÜHN, BIRETT (German), Data Sheets of Hazardous Substances

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

You find our current Versions of SDS in Internet:
http://www.mn-net.com/SDS [U.S. English]

MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
DE / international: Tel.: +49 24 21 969-0 Fax: +49 24 21 969-199 E-mail: info@mn-net.com
CH: Tel.: +41 62 388 55 00 Fax: +41 62 388 55 05 E-mail: sales-ch@mn-net.com
FR: Tel.: +33 388 68 22 68 Fax: +33 388 51 76 88 E-mail: sales-fr@mn-net.com
US: Tel.: +1 484 821 0984 Fax: +1 484 821 1272 E-mail: sales-us@mn-net.com

MACHEREY-NAGEL ISO 9001 CERTIFIED
Version: M V 4.10.1