

Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 934122

Photometer PF-3 Drinking Water

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Printing Date: 01.10.2019

Date of Issue: 17.04.2019

Section 1: Identification

1.1 Product Identifier / Product Name

REF	934122
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 25 mL Cl ₂ -2
	1 x 20 mL Cl ₂ -3
	1 x 18 mL 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

For Chemical Emergency
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night (CCN685047)
Within USA and Canada: **1-800-424-9300**
Outside USA and Canada: **+1 703-527-3887** (collect calls accepted)

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



GHS07

Signal Word	WARNING
Hazard Identification	Hazard Classes/Categories
H315	Skin Irrit. 2
H319	Eye Irrit. 2

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

Calibration tube (5 mL)

Signal Word	Do not need labelling as hazardous
No Hazard Class	-

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Alkaline Manganese Batteries Type AA

Signal Word Do not need labelling as hazardous
-
No Hazard Class

Button cell CR2032, built-in

Signal Word Do not need labelling as hazardous
-
No Hazard Class

17 mL Fe-1

Signal Word Do not need labelling as hazardous
-
No Hazard Class

5 g Fe-2

Signal Word Do not need labelling as hazardous
-
No Hazard Class

50 capsules NANOFIX pH 6.5-8.2

Signal Word Do not need labelling as hazardous
-
No Hazard Class

25 mL Cl₂ -2



Signal Word GHS07
WARNING

Hazard Identification	Hazard Classes/Categories
H315	Skin Irrit. 2
H319	Eye Irrit. 2

20 mL Cl₂ -3

Signal Word Do not need labelling as hazardous
-
No Hazard Class

18 mL Cl₂ -1

Signal Word Do not need labelling as hazardous
-
No Hazard Class

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

According the implementation of GHS immediate packages only must be labelled with product identifier(s), GHS symbol(s), signal word, manufacturer name and phone number (OSHA's interpretation of HCS 2012).

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) / **until 100 mL** (Canada WHMIS 2015). This labelling exemption does not apply to U.S.A.

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

Signal Word: -

25 mL Cl₂ -2



GHS07

Signal Word: WARNING

20 mL Cl₂ -3

Do not need labelling as hazardous

Signal Word: -

18 mL Cl₂ -1

Do not need labelling as hazardous

Signal Word: -

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.

The property «Causes severe skin burns and eye damage.» of some salts is not relevant, because the mixtures are buffered to pH >3-4. ---

Information pertaining to particular Risks to Human and possible Symptoms

Information pertaining to particular Risks to the Environment

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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:	<i>water</i>	CAS No.:	7732-18-5
Classification:	No criteria for classification or naming of chemical is not required.		
Chemical Formula:	H ₂ O		
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:	<i>alkaline manganese battery</i>	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:	<i>Button cell on circuit board (lithium metal battery)</i>	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:	<i>triazine derivate</i>	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.		

Chemical:	<i>acetate buffer solution</i>	CAS No.:	-
Classification:	No criteria for classification or naming of chemical is not required.		
Chemical Formula:	CH ₃ COOH/K/Na•H ₂ O		
TSCA Inventory:	all listed		
Weight Percent:	45 - <60 %		
acc. GHS:	The criteria for classification are not fulfilled.		

5 g Fe-2

Chemical:	<i>L(+)-ascorbic acid</i>	CAS No.:	50-81-7
Classification:	No criteria for classification or naming of chemical is not required.		
Chemical Formula:	C ₆ H ₈ O ₆		
Synonyms:	vitamin C		
TSCA Inventory:	listed		
RTECS:	C17650000	MFCD:	00064328
EC No.:	200-066-2		
Weight Percent:	20 - <30 %		
acc. GHS:	The criteria for classification are not fulfilled.		

Chemical:	<i>sodium chloride</i>	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.		

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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.

25 mL Cl₂ -2

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: 0,1 - <1 %
 acc. GHS: The criteria for classification are not fulfilled.

Chemical: *sulfuric acid* CAS No.: 7664-93-9
 Classification: H314, Skin Corr. 1B
 Chemical Formula: $H_2SO_4 (\cdot H_2O)$
 TSCA Inventory: listed
 RTECS: WS5600000
 EC No.: 231-639-5 Indice No.: 016-020-00-8
 Weight Percent: 5 - <15 %
 acc. GHS: H315, Skin Irrit. 2, H319, Eye Irrit. 2

20 mL Cl₂ -3

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.

18 mL Cl₂ -1

Chemical: *phosphate buffer solution* CAS No.: -
 Classification: No criteria for classification or naming of chemical is not required.
 Chemical Formula: $K/Na_{1-3}H_{2-0}PO_4 \cdot x H_2O$
 TSCA Inventory: all listed
 Weight Percent: 50 - <75 %
 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%.

List of Hazard and Precaution phrases: see section 16.1

Section 4: First-Aid Measures

4.1 Description of First-Aid Measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice.

4.1.1 After SKIN Contact

Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.

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- 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 Vapors**
After inhalation of foam or vapor fresh air should be inhaled. Keep airways free.
- 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**

- 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**
Formation of hazardous and caustic vapor-air mixtures possible. ---
- 5.3 Advice for Firefighters**
No, for listed product. Product package burns like paper or plastic.
- 5.4 Additional Information**

Section 6: Accidental Release Measures

- 6.1 Personal Precautions, Protective Equipment and Emergency Procedure**
Regular staff training is necessary.
- 6.2 Environmental Precautions**
not necessary
- 6.3 Methods and Material for Containment and Cleaning up**
Bind any escaping liquid with inert absorbent.
Collect small amounts of leaked liquid and flush with 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): 8B
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.



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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 derivat* 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

25 mL Cl₂ -2

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: *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

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

EU value: 0.1 e mg/m³

20 mL Cl₂ -3

Chemical: *potassium iodide* CAS No.: 7681-11-0

18 mL Cl₂ -1

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

8.2 Exposure Controls

The highest level of cleanliness must be maintained at the workplace.

8.2.1 Respiratory Protection

No additional recommendations.

8.2.2 Hand Protection

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

8.2.3 Eye/Face Protection

Yes, Splash Goggles.

8.2.4 Skin Protection

Not necessary.

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8.2.5

Hygiene Measures

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

Section 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

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/cm ³		
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		
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		

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- 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
- 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: ---



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25 mL Cl₂ -2

a)	Appearance: liquid	Color: rose	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	0-1	
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:	1,1 g/cm ³	
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:	---	

20 mL Cl₂ -3

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/cm ³	
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:	---	

18 mL Cl₂ -1

a)	Appearance: liquid	Color: colorless	b) Odor: odorless
c)	Odor Threshold:	data not available	
d)	pH:	9	
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:	1,2 g/cm ³	
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:	---	

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9.2 Other Information

Relevant Properties of Substance Group

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

10.5 Incompatible Materials

Not necessary. Avoid contact with strong acids or alkalines. ---

10.6 Hazardous Decomposition Products

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

Section 11: Toxicological Information

11.1 Information on Toxicological Effects

Following information is valid for pure 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

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25 mL Cl₂ -2

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: *sulfuric acid* CAS No.: 7664-93-9
 TSCA Inventory: listed California Prop. 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
 Canada CEPA 1999: DSL Yes
 LD50_{orl rat}: 2140 mg/kg
 LC50_{ihl rat}: [8h] 600/ [4h] 850 mg/m³

20 mL Cl₂ -3

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

18 mL Cl₂ -1

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

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 derivat* 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

25 mL Cl₂ -2

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

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

PNEC(fresh water) : 2.5 µg/L
 PNEC = Predicted No Effected Concentration

LC50_{fish/96h} : [NOEC, 65d] 25 µg/L

EC50_{daphnia/48h} : 100 mg/L

EC10_{pseudomonas putita/16h} : [72h] 100 mg/L

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20 mL Cl₂ -3
 Chemical: *potassium iodide* CAS No.: 7681-11-0
 LC50_{fish/96h}: 2190 mg/L
 Partition Coefficient (o-w): 0.04

18 mL Cl₂ -1
 Chemical: *phosphate buffer solution* CAS No.: -

- 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: 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 (RCRA Code D002/D003, EU waste code number 16 05 06).

- 13.1 Waste Treatment Methods**
Normally it is possible to empty small amounts (diluted!) into drains.

Section 14: Transport Information

14.1. UN/NA: 3316 **14.2. Proper Shipping Name: Chemical Kit**
14.3. Hazard Class: 9 **14.4. Packing Group: II**
Transportation by Road
 Classification code: M11 Tunnel Restriction Code: E
 Limited Quantity: acc. ADR 3.3.1/251: see LQ in "Alternative Declaration for Transportation"
Air Transportation
 PAX: 960 max. weight PAX: 10 KG
 CAO: 960 max. weight CAO: 10 KG
Maritime Transport
 EmS: F-A, S-P Storage Category: A

Or use **the alternative Declaration for Transportation:**
 UN/NA: (see below) UN/NA 1993 Class 3 III, Class 8 III, **Excepted Quantities** (≤30 mL/Σ≤1 L) = ADR/ IATA E1
 or

14.1. UN/NA: 1993 **14.2. Proper Shipping Name: Flammable liquid, n.o.s. (... mixture)**
14.3. Hazard Class: 3 **14.4. Packing Group: III**
Transportation by Road
 Classification code: F1 Tunnel restriction code: E
 Limited Quantity: 5 L Special instructions: 640E
 Excepted Quantity: E 1
Air Transportation
 PAX: 355 max. weight PAX: 60 L
 CAO: 366 max. weight CAO: 220 L
Maritime Transport
 EmS: F-E, S-E Storage Category: A

14.1. UN/NA: 3264 **14.2. Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s. (sulfuric acid solution)**
14.3. Hazard Class: 8 **14.4. Packing Group: III**
Transportation by Road
 Classification code: C1 Tunnel restriction code: E
 Limited Quantity: 5 L
 Excepted Quantity: E 1
Air Transportation
 PAX: 852 max. weight PAX: 5 L
 CAO: 856 max. weight CAO: 60 L
Maritime Transport



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EmS: F-A, S-B Storage Category: A

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.

NIOSH Pocket Guide to Chemical Hazards

NIOSH Workplace Safety & Health Topics

TSCA Inventory

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

Canada

Canada CEPA 1999 - Domestic Substances List (DSL), List of Toxic Substances (Schedule 1)

MN Leaflet/User manual, also see www.mn-net.com

15.2 Chemical Safety Assessment

not necessary for these small amounts ---

Section 16: Other Information

16.1 List of Hazard and Precaution Phrases

16.1.1 List of relevant H Phrases

H315 Causes skin irritation.

H319 Causes serious eye irritation.

16.1.2 List of relevant P Phrases

P280sh Wear protective gloves/eye protection.

16.2 Training Advice

Regular safety training.

16.3 Recommended Restriction on Use

Only for Professional User.

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

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:

www.mn-net.com



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