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

1.1 Product identifier

REF 91860
Product name NANOCOLOR Manganese

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 100 mL Manganese R1
1 x 100 mL Manganese R2
1 x 100 mL Manganese 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
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

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

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

SECTION 2: Hazard identification

2.0 Classification of the complete product

GHS02 GHS05 GHS07 GHS08 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H314	Skin Corr. 1B
H315	Skin Irrit. 2
H317	Skin Sens. 1
H319	Eye Irrit. 2
H335, H336	STOT SE 3
H351	Carc. 2
H371	STOT SE 2
H373	STOT RE 2
H400	Aquatic Acute 1

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2.1 Classification of the substance or mixture

100 mL Manganese R1

GHS07 GHS08

Signal word WARNING

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1
H317	Skin Sens. 1
H351	Carc. 2

100 mL Manganese R2

GHS05 GHS07 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
H314	Skin Corr. 1B
H335, H336	STOT SE 3
H400	Aquatic Acute 1

100 mL Manganese R3

GHS02 GHS07 GHS08

Signal word WARNING

Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3
H290	Met. Corr. 1
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H317	Skin Sens. 1
H319	Eye Irrit. 2
H351	Carc. 2
H371	STOT SE 2
H373	STOT RE 2

2.2 Label elements

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

Harmful chemicals/mixtures with signal word: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2). This labelling exemption is NOT valid for sensibilizing substances.
Metal corrosive solutions**do not have to** be labelled with GHS symbol, signal word, H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2.1.3).

100 mL Manganese R1

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GHS07 GHS08

Signal word: WARNING

H317, H351
May cause an allergic skin reaction. Suspected of causing cancer.

P201, P261sh, P280sh
Obtain special instructions before use. Avoid breathing dust/vapours. Wear protective gloves/eye protection.

100 mL Manganese R2

GHS05 GHS07 GHS09

Signal word: DANGER

H314
Causes severe skin burns and eye damage.

P260sh, P280sh, P303+361+353, P305+351+338, P310
Do not breathe dust/vapours. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

100 mL Manganese R3

GHS02 GHS07 GHS08

Signal word: WARNING

H317, H351
May cause an allergic skin reaction. Suspected of causing cancer.

P201, P261sh, P280sh
Obtain special instructions before use. Avoid breathing dust/vapours. Wear protective gloves/eye protection.

2.3 Other hazards

Possible hazards from physicochemical properties
Generally in the case of pH values are less than 2 or higher than 11.5 then it is corrosive. In the case of pH values are less than 5 or higher than 9 then it is irritant. Flammable properties. ---

Information pertaining to particular risks to human and possible symptoms
Causes varying degrees of acid burns on the skin, to the eyes and to the mucous membranes and wounds which do not heal quickly depending on the concentration, temperature and the exposure time. Vapours especially which steam from hot liquids and mist can have a severe irritant effect upon the eyes and the respiratory organs.
Cause after oral intake, inhalation of vapours/dust, skin contact, impairments of health when ingested in small quantities. May cause sensitization by skin contact, also in repeated contact of small amounts. Suspected of causing cancer. -

Information pertaining to particular risks to the environment
Avoid contact of substance/mixture to environment.
PBT: not applicable
vPvB: not applicable

Other hazards

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SECTION 3: Composition/information on ingredients

3.1 Substances or 3.2 Mixtures

100 mL Manganese R1

Chemical: *paraformaldehyde* CAS No.: 30525-89-4
Classification: H228, Flam. Sol. 1, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H317, Skin Sens. 1, H318, Eye Dam. 1, H332, Acute Tox. 4 inh., H335, STOT SE 3, H351, Carc. 2
Formula: $(CH_2O)_n$
TSCA Inventory: listed
RTECS: RV0540000 MFCD: 00133991
Concentration: 1 - <3 %
acc. CLP (GHS): H317, Skin Sens. 1, H351, Carc. 2

Chemical: *hydroxylammonium chloride* CAS No.: 5470-11-1
Classification: H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H315, Skin Irrit. 2, H317, Skin Sens. 1, H319, Eye Irrit. 2, H351, Carc. 2, H373, STOT RE 2, H400, Aquatic Acute 1
Formula: $NH_2OH{\bullet}HCl/H_4ClNO$
Pseudonym: hydroxylamin hydrochloride
TSCA Inventory: listed
REACH Reg. No.: as intermediate
EC No.: 226-798-2 Indice No.: 612-123-00-2
RTECS: NC3675000 MFCD: 00051089
KE No.: KE-20602, >1% Toxic 97-1-411
Concentration: 5 - <10 %
acc. CLP (GHS): H290, Met. Corr. 1, H317, Skin Sens. 1, H351, Carc. 2

100 mL Manganese R2

Chemical: *ammonia solution* CAS No.: 1336-21-6
Classification: H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1
Formula: $NH_3 \bullet H_2O$
Pseudonym: ammonium hydroxide, Aqua ammonia, aqueous ammonia
TSCA Inventory: listed
REACH Reg. No.: 01-2119488876-14-xxxx, 01-2119982985-14-XXXX
EC No.: 215-647-6 Indice No.: 007-001-01-2
RTECS: BQ9625000 MFCD: 00011418
KE No.: KE-01688, >10% Toxic 97-1-184
Concentration: 16 - <25 %
acc. CLP (GHS): H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1

100 mL Manganese R3

Chemical: *hydroxylammonium chloride* CAS No.: 5470-11-1
Classification: H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H315, Skin Irrit. 2, H317, Skin Sens. 1, H319, Eye Irrit. 2, H351, Carc. 2, H373, STOT RE 2, H400, Aquatic Acute 1
Formula: $NH_2OH{\bullet}HCl/H_4ClNO$
Pseudonym: hydroxylamin hydrochloride
TSCA Inventory: listed
REACH Reg. No.: as intermediate
EC No.: 226-798-2 Indice No.: 612-123-00-2
RTECS: NC3675000 MFCD: 00051089
KE No.: KE-20602, >1% Toxic 97-1-411
Concentration: 10 - <25 %
acc. CLP (GHS): H290, Met. Corr. 1, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H317, Skin Sens. 1, H319, Eye Irrit. 2, H351, Carc. 2, H373, STOT RE 2

Chemical: *methanol* CAS No.: 67-56-1
Classification: H225, Flam. Liq. 2, H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H331, Acute Tox. 3 inh., H370, STOT SE 1
Formula: CH_4O, CH_3OH
TSCA Inventory: listed
REACH Reg. No.: 01-2119433307-44-xxxx
EC No.: 200-659-6 Indice No.: 603-001-00-X
RTECS: PC1400000 MFCD: 00004595
KE No.: KE-23193, Toxic 97-1-80
Concentration: 2.5 - <10 %
acc. CLP (GHS): H226, Flam. Liq. 3, H302, Acute Tox. 4 oral, H371, STOT SE 2

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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 16.1

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. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor.

4.1.1 After SKIN Contact

Remove contaminated clothing immediately. Rinse the affected skin or mucous membrane thoroughly for min. 15 minutes under running water. (If possible) use soap. Avoid neutralisation. Then apply a loose bandage.

4.1.2 After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open for min. 10 minutes with eye washing bottle, eye douche or running water (protect intact eye). Before (if possible) apply eye drops Proxymetacaine 0.5%, if the opening the eyelid convulsion is painful. Further treatment to be carried out by an eye specialist.

4.1.3 After INHALATION of vapours

After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. If vomiting and if insensible place patient in recovery position and keep airways free. ---

4.1.4 After ORAL Intake

After oral intake lots of water with activated charcoal supplement should be drunk after it has been ingested. Do not induce vomiting under any circumstances. Do not make any efforts to neutralise it. Contact medical advice for possible consequences. ---

4.2 Most important symptoms and effects, both acute and delayed

May cause sensitization by skin contact, also in repeated contact of small amounts. CMR Effects: Suspected of causing cancer. ---

4.3 Indication of any immediate medical attention and special treatment needed

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

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 Special hazards arising from the substance or mixture

WARNING: Flammable (GHS regulation). May form explosive vapour-air mixtures. Formation of hazardous and caustic vapour-air mixtures possible. ---

5.3 Advice for firefighters

No, for listed product. Product package burns like paper or plastic. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.
For great amount - if necessary - protective breathing apparatus which is independent of the ambient air (isolated equipment), and sealed protective clothing is necessary in the event of a large-scale formation of toxic substances.

5.4 Additional information

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe vapours. Wear suitable protective gloves (see 8.2.2). Wear eye protection, respectively face protection. Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.

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6.2 Environmental precautions

not necessary

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 ---

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): 3
Water hazard class (DE): 3

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage. Use inbreakable container for transport of glass bottles.

7.3 Specific end use(s)

Product for analytical use.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

100 mL Manganese R1

Chemical: *paraformaldehyde* CAS No.: 30525-89-4
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: *hydroxylammonium chloride* CAS No.: 5470-11-1
TRGS 900 (DE): 1.5 mg/m³
E/e respirable
NIOSH: not listed
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
OSHA: not listed

100 mL Manganese R2

Chemical: *ammonia solution* CAS No.: 1336-21-6
DNEL: [inh] 14 mg/m³
DNEL = Derived No-Effect Level (for workers)
$PNEC_{(fresh\ water)}$: 0.0011 mg/L
PNEC = Predicted No Effected Concentration
EU value: 20 ppm / 14 mg/m³
TRGS 900 (DE): 20 ppm / 14 mg/m³
E/e respirable
Short-term exposure factor: 2 (I), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded
SUVA(CH) MAK value: 20 ppm / 14 mg/m³
NIOSH: [TWA] 25 ppm / 18 mg/m³
NIOSH STEL: 35 ppm / 27 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: Yes (TQ = 15000 lbs) - n/a; [TWA] 50 ppm / 35 mg/m³

100 mL Manganese R3

Chemical: *hydroxylammonium chloride* CAS No.: 5470-11-1
TRGS 900 (DE): 1.5 mg/m³
E/e respirable
NIOSH: not listed
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
OSHA: not listed

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Chemical: *methanol* CAS No.: 67-56-1
DNEL: [derm] 40 mg/kg bw/day; [inh] 260 mg/m³
DNEL = Derived No-Effect Level (for workers)
PNEC(fresh water) : 20.8 mg/L
PNEC = Predicted No Effected Concentration
EU value: [TWA] 200 ppm / 260 mg/m³
TRGS 900 (DE): 200 ppm / 270 mg/m³
E/e respirable
Short-term exposure factor: 4 (II), H, Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded
SUVA(CH) MAK value: 200 ppm/ 260 mg/m³
SUVA(CH) BAT value: [U/c,b] 30 mg/L
TRGS 903 (DE): U/c,b 30 mg/L
B blood, U urine, a no limitation, b end of exposition or shift
NIOSH: [TWA, skin] 200 ppm / 260 mg/m³
NIOSH STEL: 250 ppm / 325 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] 200 ppm / 260 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
No additional recommendations.

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

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

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

100 mL Manganese R1
Appearance: liquid | Colour: colourless | Odor: penetrative

100 mL Manganese R2
Appearance: liquid | Colour: colourless | Odor: aminic
pH: 10-11
Specific gravity: 0,89 g/cm³

100 mL Manganese R3
Appearance: liquid | Colour: colourless | Odor: alcoholic

9.2 Other information

Data for the other parameters of the mixtures are not available, because no registration and no chemical safety report is required.
Relevant Properties of Substance Group

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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

Can react violently with organic material. No further data available.

10.4 Conditions to avoid

Not necessary. Observe labeled storage temperature. ---

10.5 Incompatible materials

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 substances. Quantitative data on the toxicity of this product are not available.

100 mL Manganese R1

Chemical: *paraformaldehyde* CAS No.: 30525-89-4
TSCA Inventory: listed California Proposition 65 List: not listed
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: Article 57-2 (SDS required)
South Korea TCCA: not listed
$LD50_{orl\ rat}$: 592 mg/kg
Acute Effects: Cause after skin contact, impairments of health when ingested in small quantities. May cause sensitization by skin contact, also in repeated contact of small amounts.
Carcinogenic Effects: Suspected of causing cancer.

Chemical: *hydroxylammonium chloride* CAS No.: 5470-11-1
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: -
Symptoms: -
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance
Japan ISHL: not listed
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-20602, >1% Toxic 97-1-411
$LD50_{orl\ rat}$: 141 mg/kg
Acute Effects: Cause after skin contact, impairments of health when ingested in small quantities. May cause sensitization by skin contact, also in repeated contact of small amounts.
Carcinogenic Effects: Suspected of causing cancer.
TRGS 907 (DE): Sh

100 mL Manganese R2

Chemical: *ammonia solution* CAS No.: 1336-21-6
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, ingestion (solution), skin and/or eye contact (solution/liquid)
Target Organs: Eyes, skin, respiratory system
Symptoms: irritation eyes, nose, throat; dyspnea (breathing difficulty), wheezing, chest pain; pulmonary edema; pink frothy sputum; skin burns, vesiculation; l
Australia NICNAS: not listed Canada CEPA 1999: DSL yes, Toxic Substances (Schedule 1) Yes (Item 53.)
Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance
Japan ISHL: listed ≥0,2%/≥0,1%, Article 57-2 (SDS required)
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-01688, >10% Toxic 97-1-184
$LD50_{orl\ rat}$: 350 mg/kg
$LC\_Low_{ihl\ hmn}$: 5000 mg/m³

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$LC50_{ihl\ rat}$: [4h] 2000 ppm
$LD50_{drm\ rbt}$: [5min] 5000 ppm
Acute Effects: Cause after inhalation of vapours/dust, impairments of health when ingested in small quantities.

100 mL Manganese R3

Chemical: *hydroxylammonium chloride* CAS No.: 5470-11-1
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: -
Symptoms: -
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance
Japan ISHL: not listed
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: KE-20602, >1% Toxic 97-1-411
$LD50_{orl\ rat}$: 141 mg/kg
Acute Effects: Cause after oral intake, 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 damage to organs through prolonged or repeated exposure.
Carcinogenic Effects: Suspected of causing cancer.
TRGS 907 (DE): Sh

Chemical: *methanol* CAS No.: 67-56-1
TSCA Inventory: listed California Proposition 65 List: listed, developmental
ACGIH: 200 ppm / 160 mg/m³
Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system, central nervous system, gastrointestinal tract
Symptoms: irritation eyes, skin, upper respiratory system; headache, drowsiness, dizziness, nausea, vomiting; visual disturbance, optic nerve damage (blindness
Australia NICNAS: Canada CEPA 1999: DSL yes
Japan CSCL/PRTR: PAC yes, Japan PDSCL: Deleterious Substance
Japan ISHL: listed ≥0,3%/≥0,1%, Article 57-2 (SDS required)
South Korea TCCA: Accident Precaution Chemical yes
Korea Exist.Chem.Inventory: KE-23193, Toxic 97-1-80
$LD50_{orl\ rat}$: 5628 mg/kg
$LC\_Low_{ihl\ rat}$: [4h] 64000 mg/m³
$LC\_Low_{orl\ hmn}$: 143 mg/kg
$LC50_{ihl\ rat}$: [4h] >80 mg/L
$LD50_{drm\ rbt}$: 15800 mg/kg
$LD50_{orl\ mus}$: 7300 mg/kg
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.
Chronic Effects:
TRGS 905 (DE): R_F C

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

100 mL Manganese R1

Chemical: *paraformaldehyde* CAS No.: 30525-89-4
Water hazard class (DE): 2
Storage class (VCI): 11

Chemical: *hydroxylammonium chloride* CAS No.: 5470-11-1
$LC50_{leuciscus\ idus/96h}$: 1-10 mg/L
Water hazard class (DE): 3
Storage class (VCI): 4.1 A

100 mL Manganese R2

Chemical: *ammonia solution* CAS No.: 1336-21-6
Very toxic to aquatic life. Avoid contact of substance/mixture to environment.
Environmental hazards must not be labelled with H and P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).
$PNEC_{(fresh\ water)}$: 0.0011 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: 0,89 mg/L
$EC50_{daphnia/48h}$: 101 mg/L

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Water hazard class (DE): 2 WGK No.: 0211
Storage class (VCI): 8 B

100 mL Manganese R3

Chemical: *hydroxylammonium chloride* CAS No.: 5470-11-1
$LC50_{leuciscus\ idus/96h}$: 1-10 mg/L
Water hazard class (DE): 3
Storage class (VCI): 4.1 A

Chemical: *methanol* CAS No.: 67-56-1
$PNEC_{(fresh\ water)}$: 20.8 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{daphnia\ magna/48h}$: [24h] 23.5 g/L
$LC50_{pimephales\ promelas/96h}$: 29.4 g/L
$LC50_{fish/96h}$: 15.4 g/L
$EC50_{daphnia/48h}$: >10 g/L
$IC50_{scenedesmus\ quadricauda/72h}$: [IC5 8d] 8000 mg/L
$EC10_{pseudomonas\ putita/16h}$: [EC5] 6.6 g/L
Water hazard class (DE): 1 WGK No.: 0145
$Dispersion\ coefficient_{(octanol-water)}$: -0.77
Storage class (VCI): 3

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

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

Normally it is possible to empty small amounts (diluted!) into drains. Empty containers of corrosive reagents prior to disposal, rinse with water.

SECTION 14: Transport information

14.1. UN number: 3316 14.2. UN proper shipping name: Chemical Kit
14.3. Class: 9 14.4. Packing group: II
Road transport
Classification code: M11 Tunnel restriction code: E
Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation
Air transport
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 **Alternative declaration for transportation:**

14.1 UN number: 1992 14.2 UN proper shipping name: Flammable liquid, toxic, n.o.s. (paraformaldehyde, methanol solution)
14.3 Class: 3 Additionally class: **6.1 _14.4 Packing group: III**
Road transport
Classification code: FT1
Limited Quantity: 5 L Tunnel restriction code: E
Excepted Quantity: E 1 Special instructions: 274
Air transport

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PAX:	355	max. weight PAX:	60 L
CAO:	366	max. weight CAO:	220 L
Maritime transport			
EmS:	F-E, S-D	Storage category:	A

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

German act governing protection from hazardous substances (Chemicals Act / Chemikaliengesetz- ChemG), revised on August 2013
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 October 2011
MN Leaflet/User manual, also see www.mn-net.com
Look for your country-specific regulations.

15.2 Chemical safety assessment

not necessary for these small amounts ---

SECTION 16: Other information

16.1 List of H and P phrases

16.1.1 List of relevant H phrases

H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H371	May cause damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

16.1.2 List of relevant P phrases

P201	Obtain special instructions before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260sh	Do not breathe dust/vapours.
P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P273	Avoid release to the environment.
P280sh	Wear protective gloves/eye protection.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P330	Rinse mouth.
P390	Absorb spillage to prevent material damage.
P403+233	Store in a well-ventilated place. Keep container tightly closed.

16.2 Training advice

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

16.4 Further information

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16.5 Sources of key data

Regulation 453/2010/EU REACH - REQUIREMENTS FOR THE COMPILATION OF SAFETY DATA SHEETS
Regulation 487/2013/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 669/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 1480/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
TRGS 900, German engineering rules governing limits in air at work, updated 03/2019
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 November 2011
KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

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

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