

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055
Printing date: 03.08.2026

VISOCOLOR HE Manganese
Date of issue: 27.01.2026

Page: 1/15
Version: 2.2.4.4

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

1.1 Product identifier

REF 920055
Product name VISOCOLOR HE 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 30 mL Mn-1 UFI: 68KU-5395-G20J-GKFE
1 x 28 mL Mn-2 UFI: HHRT-A372-M203-15N2
1 x 22 mL Mn-3 UFI: XCKU-N3YJ-T201-4X1G

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
Valenciennner Str. 11, 52355 Düren, Germany
Phone: +49 2421 969 0

E-mail: sds@mn-net.com (msds@mn-net.com)

1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.

DE: Gemeinsames Giftinformationszentrum (GGIZ)
99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>

You find our current versions of SDS in Internet:

<<https://www.mn-net.com/SDS>>

SECTION 2: Hazard identification

2.0 Classification of the complete product according to Regulation (EC) 1272/2008



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. 1 B
H317	Skin Sens. 1
H335	resp. irrit. STOT SE 3
H351	Carc. 2
H371	STOT SE 2
H373	STOT RE 2
H400	Aquatic Acute 1

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

28 mL Mn-2

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 2/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

Version: 2.2.4.4



Signal word

DANGER

Hazard identification

H314
H335
H400

Hazard classes/categories

Skin Corr. 1 B
resp. irrit. STOT SE 3
Aquatic Acute 1

30 mL Mn-1



Signal word

DANGER

Hazard identification

H290
H317
H351

Hazard classes/categories

Met. Corr. 1
Skin Sens. 1
Carc. 2

22 mL Mn-3



Signal word

DANGER

Hazard identification

H226
H290
H302
H315
H317
H319
H351
H371
H373

Hazard classes/categories

Flam. Liq. 3
Met. Corr. 1
Acute Tox. 4 oral
Skin Irrit. 2
Skin Sens. 1
Eye Irrit. 2
Carc. 2
STOT SE 2
STOT RE 2

List of H phrases: see section 16.2

2.2 Label elements according regulation (EC) 1272/2008

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

28 mL Mn-2



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 3/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

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Signal word: DANGER

H314

Causes severe skin burns and eye damage.

P260sh, P264, P280sh, P303+361+353, P305+351+338, P310, P405, P501

Do not breathe dust/vapours. Wash hands thoroughly after handling. 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. Store locked up. Dispose of contents/container to regulated waste treatment.

30 mL Mn-1



GHS05



GHS08

Signal word: DANGER

H317, H351

May cause an allergic skin reaction. Suspected of causing cancer.

P201, P202, P261sh, P272, P280sh, P302+352, P308+313, P333+313, P362+364, P405, P501

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/vapours. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/eye protection. IF ON SKIN: Wash with plenty of water. IF exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Store locked up. Dispose of contents/container to regulated waste treatment.

22 mL Mn-3



GHS02



GHS05



GHS08

Signal word: DANGER

H317, H351

May cause an allergic skin reaction. Suspected of causing cancer.

P201, P202, P261sh, P272, P280sh, P302+352, P308+313, P333+313, P362+364, P405, P501

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/vapours. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/eye protection. IF ON SKIN: Wash with plenty of water. IF exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Store locked up. Dispose of contents/container to regulated waste treatment.

Label elements of the complete product



GHS02



GHS05



GHS08



GHS09

Signal word: DANGER

H314, H317, H351

Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of causing cancer.

P201, P202, P260sh, P264, P272, P280sh, P303+361+353, P305+351+338, P310, P333+313, P405, P501

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/vapours. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. 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. If skin irritation or rash occurs: Get medical advice/attention. Store locked up. Dispose of contents/container to regulated waste treatment.

2.3

Other hazards

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 4/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

Version: 2.2.4.4

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

Should not be released into the environment.

PBT: not applicable

vPvB: not applicable

Possible endocrine disrupting effects

no data available

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

28 mL Mn-2

Substance name: *ammonia solution*
CAS No.: 1336-21-6

Substance rating: H314, Skin Corr. 1 B, H335, resp. irrit. STOT SE 3, H400, Aquatic Acute 1
Formula: $\text{NH}_3 \cdot \text{H}_2\text{O}$
Pseudonym (de): Salmiakgeist
REACH Reg. No.: 01-2119488876-14-xxxx, 01-2119982985-14-XXXX
EC No.: 215-647-6
Concentration: 16 - <25 %
acc. CLP (GHS): H314, Skin Corr. 1 B, H335, resp. irrit. STOT SE 3, H400, Aquatic Acute 1

30 mL Mn-1

Substance name: *paraformaldehyde*
CAS No.: 30525-89-4

Substance rating: H228, Flam. Sol. 2, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H317, Skin Sens. 1, H318, Eye Dam. 1, H332, Acute Tox. 4 inh., H335, resp. irrit. STOT SE 3, H341, Muta. 2, H350, Carc. 1 B
Formula: $(\text{CH}_2\text{O})_n$
Pseudonym (de): Polyoxymethylen
Concentration: 1 - <3 %
acc. CLP (GHS): H317, Skin Sens. 1, H351, Carc. 2

Substance name: *hydroxylammonium chloride*
CAS No.: 5470-11-1

Substance rating: 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: $\text{NH}_2\text{OH} \cdot \text{HCl} / \text{H}_4\text{CINO}$
Pseudonym (de): Hydroxylaminhydrochlorid
REACH Reg. No.: as intermediate
EC No.: 226-798-2
Concentration: 5 - <10 %
acc. CLP (GHS): H290, Met. Corr. 1, H317, Skin Sens. 1, H351, Carc. 2

22 mL Mn-3



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055	VISOCOLOR HE Manganese	Page: 5/15
Printing date: 03.08.2026	Date of issue: 27.01.2026	Version: 2.2.4.4

Substance name: *hydroxylammonium chloride*
CAS No.: 5470-11-1

Substance rating: 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: $\text{NH}_2\text{OH}\cdot\text{HCl} / \text{H}_4\text{CINO}$
Pseudonym (de): Hydroxylaminhydrochlorid
REACH Reg. No.: as intermediate
EC No.: 226-798-2 Indice No.: 612-123-00-2
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

Substance name: *methanol*
CAS No.: 67-56-1

Substance rating: 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
Pseudonym (de): Methylalkohol
REACH Reg. No.: 01-2119433307-44-xxxx Indice No.: 603-001-00-X
EC No.: 200-659-6
Concentration: 2,5 - <10 %
acc. CLP (GHS): H226, Flam. Liq. 3, H302, Acute Tox. 4 oral, H371, STOT SE 2

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.

List of H and P phrases: see section 16.2.

SECTION 4: First aid measures

4.1 Description of first aid measures

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

Chronic effects: Repeated contact, even in small amounts, can lead to sensitization. Rapid penetration and destruction of the skin. Especially in the heated form.
Causes severe skin burns and eye damage.
CMR Effekte: 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 DISTRESS ensure that the patient inhales oxygen. Inform patient respectively further measures and the possibility of long-term damages. ---

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 6/15

Printing date: 03.08.2026

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Version: 2.2.4.4

SECTION 5: Firefighting measures

5.1 Extinguishing media

5.1.1 Suitable extinguishing media

Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.

5.1.2 Unsuitable extinguishing media

no data available

5.2 Special hazards arising from the substance or mixture

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.

6.2 Environmental precautions

Should not be released into the environment.

PBT: not applicable

vPvB: not applicable

6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals.

Clean any contaminated equipment and floors with plenty of water.

Collect small amounts of leaked liquid and flush with water into drains.

6.4 Reference to other sections

see information in section 5.4,7,8 and 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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

7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging from MACHEREY-NAGEL. Storage class (German chemical industry): see chapter 12.1

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.

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 7/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

Version: 2.2.4.4

SECTION 8: Exposure controls /personal protection

8.1 Control parameters

22 mL Mn-3

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 Effect 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 (I), 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

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

30 mL Mn-1

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

28 mL Mn-2

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 Effect 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

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.

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 8/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

Version: 2.2.4.4

- 8.2.1 Respiratory protection**
No additional recommendations.
- 8.2.2 Skin protection / Hand protection**
Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.
- 8.2.3 Eye / Face Protection**
Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection 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.
- 8.2.6 Thermal hazards**
no data available
- 8.3 Limitation and monitoring of environmental exposure**
Do not release product into environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

22 mL Mn-3

- | | |
|--|-------------------|
| a) State of aggregation: | liquid |
| b) Colour: | colourless |
| c) Odor: | alcoholic |
| d) Melting point: | no data available |
| e) Boiling point: | no data available |
| f) Flammability: | no data available |
| g) Explosive limits (lower / upper): | no data available |
| h) Flash point: | no data available |
| i) Flashing temperature: | no data available |
| j) Decomposition temperature: | no data available |
| k) pH value: | no data available |
| l) Kinematic viscosity: | no data available |
| m) Solubility in water: | no data available |
| n) Dispersion coefficient ($K_{o/w}$): | no data available |
| o) Vapour pressure (20°C): | no data available |
| p) Specific gravity: | no data available |
| q) Relative vapour density ($\rho_{air=1}$): | no data available |
| r) Particle size: | no data available |

30 mL Mn-1

- | | |
|--|-------------------|
| a) State of aggregation: | liquid |
| b) Colour: | colourless |
| c) Odor: | penetrative |
| d) Melting point: | no data available |
| e) Boiling point: | no data available |
| f) Flammability: | no data available |
| g) Explosive limits (lower / upper): | no data available |
| h) Flash point: | no data available |
| i) Flashing temperature: | no data available |
| j) Decomposition temperature: | no data available |
| k) pH value: | no data available |
| l) Kinematic viscosity: | no data available |
| m) Solubility in water: | no data available |
| n) Dispersion coefficient ($K_{o/w}$): | no data available |
| o) Vapour pressure (20°C): | no data available |
| p) Specific gravity: | no data available |
| q) Relative vapour density ($\rho_{air=1}$): | no data available |
| r) Particle size: | no data available |

Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 9/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

Version: 2.2.4.4

28 mL Mn-2

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	aminic
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	10-11
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient ($K_{o/w}$):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	0,89 g/cm³
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

9.2 Other information

9.2.1 Information on physical hazard classes

no data available

9.2.2 Other safety-related parameters

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.

□□

Substances are highly corrosive.

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

No more required.

10.5 Incompatible materials

no additional data available

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1 Information on the hazard classes according regulation (EC) 1272/2008

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

22 mL Mn-3

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



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055	VISOCOLOR HE Manganese	Page: 10/15
Printing date: 03.08.2026	Date of issue: 27.01.2026	Version: 2.2.4.4

Japan CSCL/PRTR: PAC yes, Japan PDSCL: Deleterious Substance
 Japan ISHL: listed $\geq 0,3\%/\geq 0,1\%$, 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 : 64,000 mg/L/4H
 LC_{Low} orl hmn : 143 mg/kg
 LC50 ihl rat : >80 mg/L/4H
 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

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

30 mL Mn-1

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

28 mL Mn-2

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; I
 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 $\geq 0,2\%/\geq 0,1\%$, Article 57-2 (SDS required)
 South Korea TCCA: not listed



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 11/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

Version: 2.2.4.4

Korea Exist.Chem.Inventory: KE-01688, >10% Toxic 97-1-184

LD50 orl rat : 350 mg/kg

LC₅₀ Low ihl hmn : 5,000 mg/L

LC50 ihl rat : 2000 ppm/4H

Acute Effects: Cause after inhalation of vapours/dust, impairments of health when ingested in small quantities.

11.2 Other hazards

Possible endocrine disrupting effects

no data available

Other information

no additional data available

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

22 mL Mn-3

Substance name: *methanol*

CAS-Nr.: 67-56-1

PNEC (fresh water) : 20.8 mg/L

PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected

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 putida/16h : [EC5] 6.6 g/L

Water hazard class (DE): 2 WGK No.: 0145

Storage class (VCI): 3

Substance name: *hydroxylammonium chloride*

CAS-Nr.: 5470-11-1

LC50 leuciscus idus/96h : 1-10 mg/L

Water hazard class (DE): 3

Storage class (VCI): 4.1 A

30 mL Mn-1

Substance name: *paraformaldehyde*

CAS-Nr.: 30525-89-4

Water hazard class (DE): 2

Storage class (VCI): 11

Substance name: *hydroxylammonium chloride*

CAS-Nr.: 5470-11-1

LC50 leuciscus idus/96h : 1-10 mg/L

Water hazard class (DE): 3

Storage class (VCI): 4.1 A

28 mL Mn-2

Substance name: *ammonia solution*

CAS-Nr.: 1336-21-6

Very toxic to aquatic life. Do not release into the environment.

Environmentally hazardous substances/mixtures up to 125 mL do not have to be labeled with H and P statements (EU 1272/2008 Annex I Paragraph 1.5.2).

PNEC (fresh water) : 0.0011 mg/L

PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected

LC50 fish/96h : 0,89 mg/L

EC50 daphnia/48h : 101 mg/L

Water hazard class (DE): 2 WGK No.: 0211

Storage class (VCI): 8 B

12.2 Persistence and degradability

12.3 Bioaccumulative potential

22 mL Mn-3



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055	VISOCOLOR HE Manganese	Page: 12/15
Printing date: 03.08.2026	Date of issue: 27.01.2026	Version: 2.2.4.4

Substance name: *methanol* CAS-Nr.: 67-56-1
Dispersion coefficient (K_{ow}): -0,77

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

no data available

12.7 Other adverse effects

no additional data available

SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06).

13.1 Waste treatment methods

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 ADR

Classification code: M11 Tunnel restriction code: E

Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation

Air transport IATA DGR

Limited Quantity: PAX: 960 max. quantity PAX: 10 KG

CAO: 960 max. quantity CAO: 10 KG

Maritime transport IMDG

EmS: F-A, S-P Staukategorie: A

Or use **Alternative declaration for transportation:**

UN No.: (see below) class 8 III, **Excepted Quantities** ($\leq 30 \text{ mL} / \sum \leq 1 \text{ L}$) = ADR/ IATA E1

or

14.1 UN number: 3266

14.2 UN proper shipping name: Corrosive liquid, basic, inorganic, n.o.s. (ammonia solution)

14.3 Class: 8

14.4 Packing group: III

Road transport ADR

Classification code: C5
Limited Quantity: 5 L Tunnel restriction code: E
Excepted Quantity: E 1

Air transport IATA DGR

Limited Quantity: PAX: 852 max. quantity PAX: 5 L

CAO: 856 max. quantity CAO: 60 L

Excepted Quantity: E 1

Maritime transport IMDG

EmS: F-A, S-B Staukategorie: A

Special instructions: 223, 274



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055	VISOCOLOR HE Manganese	Page: 13/15
Printing date: 03.08.2026	Date of issue: 27.01.2026	Version: 2.2.4.4

14.5 Environmental hazards

none, contains only small quantities of hazardous substances

14.6 Special precautions for user

not necessary

14.7 Carriage in bulk by sea in accordance with IMO instruments

Not applicable.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Chemicals Prohibition Ordinance - (DE: ChemVerbotsV), aktualisiert Jan 2017
 Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020
 Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017
 TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017
 TRGS 220, National aspects when preparing safety data sheets, Jan 2017
 TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017
 TRGS 401, Skin contact hazard - identification, assessment, action, Jun 2008, status: Feb 2011
 BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012
 TRGS 500, Protective measures, Mai 2008
 TRGS 510, Storage of hazardous substances in portable containers from March 2013, status: Oct 2015
 Chapter 4, Measures when storing hazardous substances up to 50 kg (small quantity regulation)
 Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016
 TRGS 561, Activities involving carcinogenic metals and their compounds, Oct 2017
 MN leaflet/instructions for use, also at www.mn-net.com
 If necessary, observe other country-specific regulations.

15.2 Chemical safety assessment

no data available

SECTION 16: Other information

16.1 Changes compared to the last version

Between versions 2.2.4.4 and 2.2.2.2 following changes were applied: - 2 composition data corrected - 2 substance data corrected

16.2 List of H and P phrases

16.2.1 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.

16.2.2 List of relevant P phrases

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260sh	Do not breathe dust/vapours.
P264	Wash hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280sh	Wear protective gloves/eye protection.
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.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.
P405	Store locked up.



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055	VISOCOLOR HE Manganese	Page: 14/15
Printing date: 03.08.2026	Date of issue: 27.01.2026	Version: 2.2.4.4

P501 Dispose of contents/container to regulated waste treatment.

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 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021
Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres
Directive 2004/37/EC on the protection of workers from the risk of carcinogens or mutagens at workSUVA .CH, limit values in the air at work 2009, revised on 01/2009
Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)
Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG
TRGS 907, German technical rules for listing substances and causes of sensitization, updated November 2011 Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)
Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)
Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)
TRGS 905, German rules of technology for carcinogenic and mutagenic substances, as of March 18, 2016
Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progressText (11th ATP)
Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)
Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)
TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019
Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)
Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG
Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)
Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)
Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)
Regulation 692/2022/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (18th ATP)

revisions/updates

Reason for revision: 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary
2014-04 adjustment according Regulation 487/2013/EU
2016-03 adjustment according Regulation 1221/2015/EU

2017-11 adjustment according the ECHA registration dossier
2022-11 adjustment according Regulation 878/2020/EU

16.5 Further information

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16.6 Legend / Abbreviations

acc: according
ADR: Convention concerning the International Carriage of Dangerous Goods by Road
Act: acute
BAT: biological workplace tolerance value
CAO: Cargo Aircraft Only
Carc: carcinogen
CAS: Chemical Abstracts Service
CLP: Classification, Labelling and Packaging regulation
CMR: carcinogen, mutagen, reproduction toxic
Corr: corrosive
COD: chemical oxygen demand
CSCL: Chemical Substance Control Law (Jp)
Dam: damage
DNEL: Derived No-Effect Level (for workers)
derm: dermal
dog: dog
EC10: Concentration causing a toxic effect in 10% of the test organisms
EC: European Community



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Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 920055

VISOCOLOR HE Manganese

Page: 15/15

Printing date: 03.08.2026

Date of issue: 27.01.2026

Version: 2.2.4.4

EC-Nr:	Substance number of the EC substance inventory
EmS:	Guide to accident management measures on ships
EU:	European Union
fish:	fish (not specified)
GHS:	Global Harmonized System of Classification and Labeling of Chemicals
gpg:	guinea pig
ICAO:	International Civil Aviation Organization
ihl:	inhaled
IMDG:	International Maritime Dangerous Goods Code
intrav:	intravenous
ipt:	intraperitoneal
ISHL:	Industrial Safety and Health Law (Jp)
LC50:	lethal concentration 50%
LD50:	lethal dose 50%
leuciscus idus:	fish, ide, orfe
MAK:	maximum workplace concentration
Met:	Metall
mus:	mouse
Muta:	mutagen
NIOSH:	National Institute for Occupational Safety and Health (US)
NRD:	Non-rapidly degradable
onchorhynchus mykiss:	fish, rainbow trout
orl:	oral
OSHA:	Occupational Safety and Health Administration
PAX:	transport on passenger planes allowed
PBT:	persistent, bioaccumulating, toxic substance
pH:	pH value
pimephales promelas:	fish, fathead minnow
PNEC:	Predicted No Effect Concentration
PROC 15:	Process category 'for laboratory use'
PRTR:	Law for PRTR and Promotion of Chemical Management (Jp)
PVC:	polyvinyl chloride
quail:	bird, quail
rat:	rat
rbt:	rabbit
RD:	rapidly degradable
RE:	repeated
REACH:	Registration, Evaluation, Authorisation and Restriction of Chemicals
REF:	item number, reference number
Reg.No.:	Registration number
Repr:	harmful to reproduction
Resp:	respiratory
RIP:	REACH Implementations Projects
scu:	sub cutan
SDS:	safety data sheet
Sens:	sensitisation
STEL:	short term exposure limit
STOT:	Specific Target Organ Toxicity
SVHC:	Substance of Very High Concern
t/a:	tons per year
TCCA:	Toxic Chemicals Control Act (S. Korea)
Tox:	toxic
TSCA:	The Toxic Substances Control Act (US)
TWA:	time weighted average
TRGS:	technical regulations (DE)
vPvB:	very persistent, very bioaccumulating substance

16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.