Safety Data Sheet

according to Regulations REACh 1907/2006/EC

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

1.1 Product identifier

REF 814205
Product name 2 indiv.comp.cation test mixt. 2x8 mL

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 8 mL Reference solution Manganese
1 x 8 mL Reference solution Copper

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
Valencienner 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

Information not necessary.

You find our current versions of SDS in Internet: **<http://www.mn-net.com/SDS>**

SECTION 2: Hazard identification

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

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

8 mL Reference solution Manganese

Do not need labelling as hazardous
Signal word -

No hazard class

8 mL Reference solution Copper

Do not need labelling as hazardous
Signal word -

No hazard class

List of H phrases: see section 16.2

2.2 Label elements according regulation (EC) 1272/2008

8 mL Reference solution Manganese
Do not need labelling as hazardous

Signal word: -

8 mL Reference solution Copper

Do not need labelling as hazardous
Signal word: -

Label elements of the complete product

2.3 Other hazards

Possible hazards from physicochemical properties
According to our current status of knowledge and experience we state, that this product does not contain any substances, which - in accordance with EC regulations 1272/2008/EC, 1907/2006/EC and German Regulations for Hazardous goods - have to be declared as dangerous goods, either because of their applied concentration or because of their total amount in anyone kit.
An individual package has considerably less hazardous potential.

Information pertaining to particular risks to human and possible symptoms

Information pertaining to particular risks to the environment

Possible endocrine disrupting effects
no data available

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

8 mL Reference solution Manganese

Substance name: *manganese(II) sulfate (monohydrate)*
CAS No.: 10034-96-5

Substance rating: H373, STOT RE 2, H411, Aquatic Chronic 2
Formula: $MnSO_4 \cdot H_2O$
REACH Reg. No.: 01-2119456624-35-xxxx
EC No.: 232-089-9 Indice No.: 025-003-00-4
Concentration: 0,1 - <1 % Correlation factor: x 0.36 (= %Mn)
The classification refers to the weight percentage of the metal (according to CLP regulation 2008/1272/EG Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): The criteria for classification are not fulfilled.

8 mL Reference solution Copper

Substance name: *copper(II) sulfate (pentahydrate)*
CAS No.: 7758-98-7

Substance rating: H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2, H400, Aquatic Acute 1, H410, Aquatic Chronic 1
Formula: $CuSO_4$
Pseudonym (de): Kupfervitriol
REACH Reg. No.: 01-2119520566-40-xxxx
EC No.: 231-847-6 Indice No.: 029-004-00-0
Concentration: 0,1 - <1 % Correlation factor: x 0.40 (= %Cu)
The classification refers to the weight percentage of the metal (according to CLP regulation 2008/1272/EG Annex VI, 1.1.3.2 Note 1)
acc. CLP (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 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.

4.1.1 After SKIN Contact

Not necessary.

4.1.2 **After EYE Contact**
Not necessary.

4.1.3 **After INHALATION of vapours**
Not necessary. ---

4.1.4 **After ORAL Intake**
Not necessary.

4.2 Most important symptoms and effects, both acute and delayed

4.3 Indication of any immediate medical attention and special treatment needed

No additionally recommendations. ---

SECTION 5: 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.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

None.

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 procedures

Do not breathe vapours. Not necessary.

6.2 Environmental precautions

not necessary

6.3 Methods and material for containment and cleaning up

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

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

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

Storage class (VCI): 12
Water hazard class (DE): 2

7.2.1 **Requirements for stock rooms and containers**
Keep original product packages tightly closed during handling and storage.

7.3 Specific end use(s)

Product for analytical use.

SECTION 8: Exposure controls /personal protection

8.1 Control parameters

8 mL Reference solution Manganese

Chemical: *manganese(II) sulfate (monohydrate)* CAS No.: 10034-96-5

EU value: [Mn, TWA] 0.2E / 0.05A mg/m³

TRGS 900 (DE): [Mn] 0.02A; 0.2E mg/m³
A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 8 (II), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

TRGS 903 (DE): nicht mehr gelistet
B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: [TWA] 1 / [STEL] 3 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: [C] 5 mg/m³

8 mL Reference solution Copper

Chemical: *copper(II) sulfate (pentahydrate)* CAS No.: 7758-98-7

TRGS 900 (DE): 1 (0,1) E mg/m³
A/a aveoles passing, E/e respirable, G total

Short-term exposure factor: 4
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: [als Cu][MAK]0,1 e/[STEL] 0,2 e mg/m³

8.2 Exposure controls

Not necessary.Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities.

8.2.1 Respiratory protection
Not necessary.

8.2.2 Skin protection / Hand protection
Not necessary.

8.2.3 Eye / Face Protection
Not necessary.

8.2.4 Skin protection
Not necessary.

8.2.5 Personal hygiene
Information not necessary.

8.2.6 Thermal hazards
no data available

8.3 Limitation and monitoring of environmental exposure

Information not necessary.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

8 mL Reference solution Manganese

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	odorless
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 $_{(o/w)}$:	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density $_{(air=1)}$:	no data available
r) Particle size:	no data available

8 mL Reference solution Copper

a) State of aggregation:	liquid
b) Colour:	blue
c) Odor:	odorless
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 $_{(o/w)}$:	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density $_{(air=1)}$:	no data available
r) Particle size:	no data available

9.2 Other information

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

Properties relevant to substance groups

SECTION 10: Stability and reactivity

10.1 Reactivity

None

10.2 Chemical stability

no known instability.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Not known.

10.5 Incompatible materials

Not known.

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.

8 mL Reference solution Manganese

Chemical: *manganese(II) sulfate (monohydrate)* CAS No.: 10034-96-5
TSCA Inventory: listed (CAS 7785-87-7)
Exposure Routes: inhalation, ingestion
Symptoms: Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like

Japan CSCL/PRTR: PRTR: ≥1,0%Mn class I, Japan PDSCL: not listed
Japan ISHL: listed ≥1,0%/≥0,1%
LD50 $_{orl\ rat}$: 2150 mg/kg

8 mL Reference solution Copper
Chemical: *copper(II) sulfate (pentahydrate)* CAS No.: 7758-98-7
TSCA Inventory: listed
Japan ISHL: listed ≥1,0%/≥0,1%
LD50 $_{orl\ rat}$: 300 mg/kg
LC_Low $_{orl\ hmn}$: 50 mg/kg

TRGS 905 (DE): R $_{F}$ C

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.

8 mL Reference solution Manganese
Chemical: *manganese(II) sulfate (monohydrate)* CAS No.: 10034-96-5
Water hazard class (DE): 1
Storage class (VCI): 12-13

8 mL Reference solution Copper
Chemical: *copper(II) sulfate (pentahydrate)* CAS No.: 7758-98-7
LC50 $_{pimephales\ promelas/96h}$: 0.1-2.5 mg/L
EC50 $_{daphnia/48h}$: 0.82 mg/L
Water hazard class (DE): 2 WGK No.: 0141
Storage class (VCI): 12

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

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

Not necessary.

13.1 Waste treatment methods

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

SECTION 14: Transport information

14.1 - 14.4 Not necessary

14.5 Environmental hazards

none

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

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
MN leaflet/instructions for use, also at www.mn-net.com
If necessary, observe other country-specific regulations.

15.2 Chemical safety assessment

SECTION 16: Other information

16.1 Changes compared to the last version

in preparation

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

16.2.2 List of relevant P phrases

16.3 Recommended restriction on use

None

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
SUVA .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
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)

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)

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 oxigen 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
EC-Nr:	Substance number of the EC substance inventory
EmS:	Guide to accident management measures on ships
EU:	European Union
fish:	fish (not spezified)
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:	intraperitonaeal
ISHL:	Industrial Safety and Health Law (Jp)
LC50:	letale concentration 50%
LD50:	letale dosis 50%
leuciscus idus:	fisch, 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 Effected 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.:	rRegistration 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.