

Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

| | | |
|---------------------------|---|-----------|
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| Printing date: 01.10.2019 | Date of issue: 25.04.2019 | |

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

1.1 Product identifier

REF 918911
 Product name NANOCOLOR Chloride complexing agent for COD
 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 Chloride complexing agent (R1)

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

2.1 Classification of the substance or mixture

100 mL Chloride complexing agent (R1)



GHS06 GHS07 GHS08 GHS09

Signal word DANGER

| Hazard identification | Hazard classes/categories |
|-----------------------|---------------------------|
| H301 | Acute Tox. 3 oral |
| H311 | Acute Tox. 3 derm. |
| H315 | Skin Irrit. 2 |
| H319 | Eye Irrit. 2 |
| H373 | STOT RE 2 |
| H411 | Aquatic Chronic 2 |

2.2 Label elements

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** must not be labelled with H and P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).

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100 mL Chloride complexing agent (R1)



GHS06



GHS07



GHS08



GHS09

Signal word: DANGER

H301, H311

Toxic if swallowed. Toxic in contact with skin.

P280sh, P301+310, P302+352, P405

Wear protective gloves/eye protection. IF SWALLOWED: Immediately call a POISON CENTER/ doctor. IF ON SKIN:

Wash with plenty of water. Store locked up.

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. ---

Information pertaining to particular risks to human and possible symptoms

Cause severe after oral intake, skin contact, impairments of health or can lead to death even when only ingested in small quantities. Can accumulate within the body.

The risk assessment of the tube tests showed no risk H331 "Toxic if inhaled." at the application. -

Information pertaining to particular risks to the environment

Avoid contact of substance/mixture to environment.

PBT: not applicable

vPvB: not applicable

Other hazards

SECTION 3: Composition/information on ingredients

3.1 Substances or 3.2 Mixtures

100 mL Chloride complexing agent (R1)

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

Classification: H314, Skin Corr. 1B

Formula: H₂SO₄ (+H₂O)

TSCA Inventory: listed

REACH Reg. No.: 01-2119458838-20-xxxx

EC No.: 231-639-5

Indice No.: 016-020-00-8

RTECS: WS5600000

KE No.: KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem.

Concentration: 5 - <15 %

acc. CLP (GHS): H315, Skin Irrit. 2, H319, Eye Irrit. 2

Chemical: *mercury(II) sulfate* CAS No.: 7783-35-9

Classification: H300, Acute Tox. 2 oral, H310, Acute Tox. 2 derm., H330, Acute Tox. 2 inh., H373, STOT RE 2,

H400, Aquatic Acute 1, H410, Aquatic Chronic 1

Formula: HgSO₄

Pseudonym: mercuric sulfate

TSCA Inventory: listed

REACH Reg. No.: not necessary, amount <1 t/a

EC No.: 231-992-5

Indice No.: 080-004-00-7

RTECS: OX0500000

KE No.: KE-23132, Toxic 97-1-140

Concentration: 3,7 - <15 %

Correlation factor: x 0.68 (= %Hg)

The classification refers to weight percent of the metal (according to CLP Regulation 2008/1272/EC Annex VI, 1.1.3.2 Note 1)

acc. CLP (GHS): H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H373, STOT RE 2, H411, Aquatic Chronic 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 16.1

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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 with eye washing bottle, eye douche or running water (protect intact eye).

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. ---

4.2 Most important symptoms and effects, both acute and delayed

Can accumulate within the body. ---

4.3 Indication of any immediate medical attention and special treatment needed

After SKIN CONTACT rinse with water for a long time. Apply glucocorticosteroides following inflammatory reactions. TOXIFICATION: Treat symptomatically. Secure the breathing, heart and circulatory function. Remove the substance quickly from the body. Mechanically induce vomiting or ensure the patient eats medicinal charcoal compressed tablets or drinks aluminium oxide drug suspensions. In order to ensure rapid passage through the colon (administer 2 tablespoons of dissolved Glauber's salt). Alleviation of pain, if necessary sedation. Shock treatment. Administer a prophylaxis to counter pulmonary oedema. ---

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

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. 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

not necessary, contains only small amounts of these substances

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 ---

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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. Products containing also toxic substances should be kept locked up.

Storage class (VCI): 8B

Water hazard class (DE): 3

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage, so that they are not immediately accessible to outside parties. 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 Chloride complexing agent (R1)

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

EU value: 0.1 e mg/m³

TRGS 900 (DE): 0.1 E mg/m³
 E/e respirable

Short-term exposure factor: 1 (I), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 0,1 e mg/m³

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

Chemical: *mercury(II) sulfate*

CAS No.: 7783-35-9

EU value: [Hg] 0.02 e mg/m³

TRGS 900 (DE): [Hg] 0,02 E mg/m³
 E/e respirable

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

SUVA(CH) MAK value: [Hg][MAK] 0,02 e/[STEL] 0,16 e mg/m³

SUVA(CH) BAT value: [Krea U/d] 35 µg/L

TRGS 903 (DE): [U/a_K Kreatinin] 25 µg/g
B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: [Hg Vapor: TWA_{skin}] 0.05; other 0.1 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] 0.1 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.

8.2.4 Skin protection

Recommended to avoid contamination with these hazards.

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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 Chloride complexing agent (R1)

| | | |
|----------------------|------------------------|----------------|
| Appearance: liquid | Colour: colourless | Odor: odorless |
| pH: | 0-1 | |
| Boiling point: | 100 °C | |
| Specific gravity: | 1.09 g/cm ³ | |
| Solubility in water: | 0-10 % | |

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

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

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 Chloride complexing agent (R1)

| | | |
|-----------------------------|--|--|
| Chemical: | <i>sulfuric acid</i> | CAS No.: 7664-93-9 |
| TSCA Inventory: | listed | California Proposition 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 | |
| Australia NICNAS: | not listed | Canada CEPA 1999: DSL Yes |
| Japan CSCL/PRTR: | not listed, Japan PDSCL: Deleterious Substance | |
| Japan ISHL: | listed ≥1,0%/≥1,0%, Article 57-2 (SDS required) | |
| South Korea TCCA: | Accident Precaution Chemical Yes | |
| Korea Exist.Chem.Inventory: | KE-32570, >10% Toxic 97-1-405, Acc. Precaution Chem. | |
| LD50 _{ori rat} : | 2140 mg/kg | |
| LC50 _{ihl rat} : | [8h] 600/ [4h] 850 mg/m ³ | |
| TRGS 905 (DE): | Kat 4 | |

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Chemical: *mercury(II) sulfate* CAS No.: 7783-35-9
 TSCA Inventory: listed California Proposition 65 List: listed developmental
 Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact
 Target Organs: Eyes, skin, respiratory system, central nervous system, kidneys
 Symptoms: irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headac
 Australia NICNAS: not listed Canada CEPA 1999: yes (mercury compound - Item 8.)
 Japan CSCL/PRTR: PRTR: ≥1,0%Hg class I, Japan PDSCL: Poisonous substance
 Japan ISHL: listed ≥0,3%/≥0,1%, Article 57-2 (SDS required)
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-23132, Toxic 97-1-140
 LD50_{orl rat}: 57 mg/kg
 LD50_{drm rat}: 625 mg/kg
 Acute Effects: Cause severe after oral intake, skin contact, impairments of health or can lead to death even when only ingested in small quantities.
 Chronic Effects: May cause damage to organs through prolonged or repeated exposure.
 TRGS 907 (DE): Sh

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

100 mL Chloride complexing agent (R1)

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
 Water hazard class (DE): 1 WGK No.: 0182
 Storage class (VCI): 8 B

Chemical: *mercury(II) sulfate* CAS No.: 7783-35-9
 Toxic to aquatic life with long lasting effects. 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).
 Bio Toxicity: LC50: 0.5_{HgCl2/48h} mg/L
 Water hazard class (DE): 3 WGK No.: 0412
 Storage class (VCI): 6.1 B

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). Close container tightly.

13.1 Waste treatment methods

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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: 2922
14.2 UN proper shipping name: Corrosive liquid, toxic, n.o.s. (sulfuric acid, mercury(II) sulfate solution)
14.3 Class: 8 Additionally class: 6.1 14.4 Packing group: II

Road transport

Classification code: CT1 Tunnel restriction code: E
Limited Quantity: 1 L
Excepted Quantity: E 2

Air transport

PAX: 851 max. weight PAX: 1 L
CAO: 855 max. weight CAO: 30 L

Maritime transport

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

14.5 Environmental hazards

none, contains only small quantities of hazardous substances, contains only small amounts of these 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

H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

16.1.2 List of relevant P phrases

P260sh Do not breathe dust/vapours.
P273 Avoid release to the environment.

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| | |
|----------|---|
| P280sh | Wear protective gloves/eye protection. |
| P301+310 | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. |
| P302+352 | IF ON SKIN: Wash with plenty of water. |
| P312 | Call a POISON CENTER/doctor if you feel unwell. |
| P405 | Store locked up. |

16.2 Training advice

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

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

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

TRGS 900, German engineering rules governing limits in air at work, updated 03/2018

SUVA .CH, Limits in air at work 2009, revised on 01.2009

KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

Revisions/Updates

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