

Safety Data Sheet

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

| | | |
|---------------------------|---------------------------|-------------------|
| REF: 985011 | NANOCOLOR COD 4000 | Page: 1/13 |
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SECTION 1: Identification of the substance/mixture and of the company

1.1 Product identifier

REF 985011
 no data available NANOCOLOR COD 4000
 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.
 20 x 5 mL COD 4000 (R0) UFI: RUUV-G3G5-P20P-EY35

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

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:

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

Lieferant / Supplier:
 Carl Roth GmbH + Co KG
 Schoemperlenstr. 3-5
 76185 Karlsruhe, Germany
 +49 721 5606 0
 sicherheit@carlroth.de

SECTION 2: Hazard identification

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



GHS05 GHS07 GHS08

Signal word DANGER

| Hazard identification | Hazard classes/categories |
|-----------------------|---------------------------|
| H302 | Acute Tox. 4 oral |
| H312 | Acute Tox. 4 derm. |
| H314 | Skin Corr. 1B |
| H317 | Skin Sens. 1 |
| H332 | Acute Tox. 4 inh. |
| H340 | Muta. 1B |
| H350 | Carc. 1A |
| H373 | STOT RE 2 |
| H412 | Aquatic Chronic 3 |

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

5 mL COD 4000 (R0)



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GHS05 GHS07 GHS08

Signal word DANGER

| Hazard identification | Hazard classes/categories |
|-----------------------|---------------------------|
| H302 | Acute Tox. 4 oral |
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| H317 | Skin Sens. 1 |
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| H340 | Muta. 1B |
| H350 | Carc. 1A |
| H373 | STOT RE 2 |
| H412 | Aquatic Chronic 3 |

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). Inner packages up to 10 mL need max. 2 symbols (Annex I - 1.5.2.4.1 / 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). This labelling exemption is NOT valid for sensiblizing substances.

5 mL COD 4000 (R0)



GHS05 GHS08

Signal word: DANGER

H314, H317, H340, H350, H412

Causes severe skin burns and eye damage.May cause an allergic skin reaction.May cause genetic defects.May cause cancer.Harmful to aquatic life with long lasting effects.

P201, P260sh, P280sh, P303+361+353, P305+351+338, P310, P405

Obtain special instructions before use.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.Store locked up.

Label elements of the complete product



GHS05 GHS08

Signal word: DANGER

H314, H317, H340, H350, H412

Causes severe skin burns and eye damage.May cause an allergic skin reaction.May cause genetic defects.May cause cancer.Harmful to aquatic life with long lasting effects.

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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.

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. May cause genetic defects. May cause cancer. May cause cancer if inhaled. 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

Harmful to aquatic life with long lasting effects. Avoid contact of substance/mixture to 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

5 mL COD 4000 (R0)

Substance name: *silver sulfate*
CAS No.: 10294-26-5

Substance rating: H318, Eye Dam. 1, H400, Aquatic Acute 1, H410, Aquatic Chronic 2

Formula: Ag_2SO_4

Pseudonym (de): Disilber(II)-sulfat

REACH Reg. No.: 01-2119918297-31-xxxx

EC No.: 233-653-7

Concentration: 0,1 - <1 %

Correlation factor: $x \cdot 0.69 (= \% \text{Ag})$

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.

Substance name: *sulfuric acid*

CAS No.: 7664-93-9

Substance rating: H290, Met. Corr. 1, H314, Skin Corr. 1B, H318, Eye Dam. 1

Formula: $\text{H}_2\text{SO}_4 \cdot (\text{H}_2\text{O})$

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

EC No.: 231-639-5

Indice No.: 016-020-00-8

Specific concentration limit: Skin Corr 1A; H314 $c \geq 15\%$

Concentration: 51 - <65 %

acc. CLP (GHS): H314, Skin Corr. 1B

Substance name: *potassium dichromate*

CAS No.: 7778-50-9

Substance rating: H272, Ox. Liq. 2, H301, Acute Tox. 3 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1B, H317, Skin Sens. 1, H318, Eye Dam. 1, H330, Acute Tox. 2 inh., H334, Resp. Sens. 1, H335, STOT SE 3, H340, Muta. 1B, H350, Carc. 1A, H360FD, Repr. 1B, H372, STOT RE 1, H400, Aquatic Acute 1, H410, Aquatic Chronic 1

Formula: $\text{K}_2\text{Cr}_2\text{O}_7$

Pseudonym (de): Kaliumbichromat

REACH Reg. No.: 01-2119454792-32-0004

SVHC listed: < exempt for formulation+use acc. Art.56(3)+Q&A1030

EC No.: 231-906-6

Indice No.: 024-002-00-6

Specific concentration limit: STOT SE 3; H335 $c \geq 5\%$

Concentration: 0,32 - <0,38 %

Correlation factor: $x \cdot 0.79 (= \% \text{CrO}_4)$

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): H312, Acute Tox. 4 derm., H317, Skin Sens. 1, H340, Muta. 1B, H350, Carc. 1A, H373, STOT RE 2, H412, Aquatic Chronic 3



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

Substance rating: H300, Acute Tox. 2 oral, H310, Acute Tox. 1 derm., H330, Acute Tox. 2 inh., H373, STOT RE 2, H400, Aquatic Acute 1, H410, Aquatic Chronic 1

Formula: HgSO_4

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

EC No.: 231-992-5

Indice No.: 080-004-00-7

Specific concentration limit: STOT RE 2 H373; c \geq 0,1%

Concentration: 0,37 - <0,74 % Correlation factor: x 0.68 (= %Hg)

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): H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H332, Acute Tox. 4 inh., H373, STOT RE 2, H412, Aquatic Chronic 3

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

Causing allergies. 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: Potassium dichromate: 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: May cause genetic defects. May cause cancer. May cause cancer if inhaled. Can accumulate in the body.

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 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 DISTRESSES 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

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

Formation of hazardous and caustic vapour-air mixtures possible.



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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

Harmful to aquatic life with long lasting effects. Avoid contact of substance/mixture to 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. Use a safety bottle when shaking test tubes.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging. Products which are also classified as toxic must be kept under lock and key.

Storage class (German chemical industry): see chapter 12.1

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

5 mL COD 4000 (R0)

Chemical: *silver sulfate*

CAS No.: 10294-26-5

DNEL: no data
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.04 µg/L
PNEC = Predicted No Effect Concentration

EU value: [Ag] 0.01e mg/m³

TRGS 900 (DE): [Ag] 0,01 E mg/m³
E/e respirable

Short-term exposure factor: 2 (I)
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

NIOSH: [TWA] 0.01 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] 0.01 mg/m³



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| | | |
|-----------------------------|--|--------------------|
| Chemical: | <i>sulfuric acid</i> | CAS No.: 7664-93-9 |
| DNEL: | [inh] 50 µg/m ³ 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/m ³ | |
| TRGS 900 (DE): | 0.1 E mg/m ³ 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/m ³ | |
| NIOSH: | NTP Report on Carcinogens (RoC) List Yes (Known to be a human carcinogen); [TWA] 1 mg/m ³ [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/m ³ | |
| | | |
| Chemical: | <i>potassium dichromate</i> | CAS No.: 7778-50-9 |
| DNEL: | [inh] 0.01 mg/m ³ DNEL = Derived No-Effect Level (for workers) | |
| TRGS 900 (DE): | [CrVI] (0,05 E ausgesetzt) mg/m ³ E/e respirable | |
| Short-term exposure factor: | (4), H skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded | |
| SUVA(CH) MAK value: | 0,05 e mg/m ³ | |
| SUVA(CH) BAT value: | [U/b] 20 µg/L | |
| NIOSH: | NTP Report on Carcinogens (RoC) List Yes (Chromium VI - Known to be a human carcinogen); TWA 8h 0.0002 CrO ₃ mg/m ³ [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period | |
| OSHA: | [CrO3][TWA] 0.005 mg/m ³ | |
| | | |
| Chemical: | <i>mercury(II) sulfate</i> | CAS No.: 7783-35-9 |
| EU value: | [Hg] 0.02 e mg/m ³ | |
| TRGS 900 (DE): | [Hg] 0,02 E mg/m ³ 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/m ³ | |
| SUVA(CH) BAT value: | [Krea U/d] 35 µg/L | |
| TRGS 903 (DE): | [U/a 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/m ³ [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/m ³ | |

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 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



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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

5 mL COD 4000 (R0)

| | |
|--------------------------------------|------------------------|
| a) State of aggregation: | |
| b) Colour: | colourless |
| c) Odor: | red |
| 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: | 0 |
| l) Kinematic viscosity: | no data available |
| m) Solubility in water: | 0-100 % |
| n) Dispersion coefficient (o/w): | no data available |
| o) Vapour pressure (20°C): | no data available |
| p) Specific gravity: | 1,57 g/cm ³ |
| 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

Substances are highly corrosive.

SECTION 10: Stability and reactivity

10.1 Reactivity

Strong CORROSIVE, 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

Observe the storage temperature printed on it. 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.

5 mL COD 4000 (R0)

| | | |
|------------------|---|---------------------|
| Chemical: | <i>silver sulfate</i> | CAS No.: 10294-26-5 |
| TSCA Inventory: | listed | |
| Exposure Routes: | inhalation, ingestion, skin and/or eye contact | |
| Target Organs: | Nasal septum, skin, eyes | |
| Symptoms: | Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance | |



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Japan CSCL/PRTR: PRTR: $\geq 1,0\%$ Ag class I, Japan PDSCL: Deleterious substance
 Japan ISHL: listed $\geq 1,0\%$ / $\geq 0,1\%$
 Korea Exist.Chem.Inventory: KE-12273, >25% Toxic 97-1-92
 LD50 orl rat : 2000-5110 mg/kg

Chemical: *sulfuric acid* 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 $\geq 1,0\%$ / $\geq 1,0\%$, 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 orl rat : 2140 mg/kg
 LC50 ihl mus : 0,85 mg/L/4H
 TRGS 905 (DE): Kat 4

Chemical: *potassium dichromate* CAS No.: 7778-50-9
 TSCA Inventory: listed California Proposition 65 List: listed cancer, developmental, female, male
 ACGIH: [CrVI] 0.05 mg/m³
 Exposure Routes: inhalation, ingestion, skin and/or eye contact
 Target Organs: Blood, respiratory system, liver, kidneys, eyes, skin; [lung cancer]
 Symptoms: irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), leukopenia (reduced blood le
 Japan CSCL/PRTR: PRTR: $\geq 0,1\%$ Cr specific class I, Japan PDSCL: Deleterious substance
 Japan ISHL: listed $\geq 0,1\%$ / $\geq 0,1\%$, Article 57-2 (SDS required)
 South Korea TCCA: yes, Restricted Chemical
 Korea Exist.Chem.Inventory: not listed
 LD50 orl rat : 25 mg/kg
 LC_Low orl gpg : 163 mg/kg
 LC50 ihl rat : 0,094 mg/L/4H
 Acute Effects: Cause after inhalation of vapours/dust, 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: May cause genetic defects. May cause cancer. May cause cancer if inhaled.
 EU carcinogen: carc. 1B, mutag. 1B, repr. 1B
 TRGS 905 (DE): K2
 TRGS 907 (DE): Sh

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: $\geq 1,0\%$ Hg class I, Japan PDSCL: Poisonous substance
 Japan ISHL: listed $\geq 0,3\%$ / $\geq 0,1\%$, 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
 Acute Effects: Cause after oral intake, inhalation of vapours/dust, skin contact, impairments of health when ingested in small quantities.
 Chronic Effects: May cause damage to organs through prolonged or repeated exposure.
 TRGS 907 (DE): Sh

11.2 Other hazards

Possible endocrine disrupting effects



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no data available

Other information

no additional data available

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

5 mL COD 4000 (R0)

| | | |
|--|-----------------------|---------------------|
| Chemical: | <i>silver sulfate</i> | CAS No.: 10294-26-5 |
| PNEC (fresh water) : | 0.04 µg/L | |
| PNEC = Predicted No Effect Concentration | | |
| LC50 daphnia magna/48h : | 0.22 µg/L | |
| LC50 fish/96h : | [4d] 1.2 µg/L | |
| EC10 pseudomonas putida/16h : | [24h] 0.41-0.54 µg/L | |
| Water hazard class (DE): | 3 | |
| Storage class (VCI): | 12 | |

| | | |
|--|----------------------|--------------------|
| Chemical: | <i>sulfuric acid</i> | CAS No.: 7664-93-9 |
| PNEC (fresh water) : | 2.5 µg/L | |
| PNEC = Predicted No Effect Concentration | | |
| LC50 fish/96h : | [NOEC, 65d] 25 µg/L | |
| EC50 daphnia/48h : | 100 mg/L | |
| EC10 pseudomonas putida/16h : | [72h] 100 mg/L | |
| Water hazard class (DE): | 1 | WGK No.: 0182 |
| Storage class (VCI): | 8 B | |

| | | |
|--------------------------|-----------------------------|--------------------|
| Chemical: | <i>potassium dichromate</i> | CAS No.: 7778-50-9 |
| LC50 fish/96h : | 26.13 mg/L | |
| EC50 daphnia/48h : | 0.77 mg/L | |
| Water hazard class (DE): | 3 | WGK No.: 339 |
| Storage class (VCI): | 6.1 B | |

| | | |
|--------------------------|----------------------------|--------------------|
| Chemical: | <i>mercury(II) sulfate</i> | CAS No.: 7783-35-9 |
| Bio Toxicity: | LC 50 : 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

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). Close container tightly.

13.1 Waste treatment methods

Not necessary, see above.



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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 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 ICAO
 PAX: 960 max. weight PAX: 10 KG
 CAO: 960 max. weight CAO: 10 KG
Maritime transport IMDG
 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. (mercury(II) sulfate, sulfuric acid solution)
14.3 Class: 8 **14.4 Packing group:** II
Road transport ADR
 Classification code: CT1 Tunnel restriction code: E
 Limited Quantity: 1 L
 Excepted Quantity: E 2
Air transport ICAO
 Limited Quantity: LQ 22
 Excepted Quantity: E 2
 PAX: 851 max. weight PAX: 1 L
 CAO: 855 max. weight CAO: 30 L
Maritime transport IMDG
 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

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

not necessary for these small amounts



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SECTION 16: Other information

16.1 Changes compared to the last version

Between versions 2.2.2.13 and 2.2.2.2 following changes were applied: - 11 substance data corrected

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

| | |
|------|--|
| H302 | Harmful if swallowed. |
| H312 | Harmful in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H317 | May cause an allergic skin reaction. |
| H332 | Harmful if inhaled. |
| H340 | May cause genetic defects. |
| H350 | May cause cancer. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H412 | Harmful to aquatic life with long lasting effects. |

16.2.2 List of relevant P phrases

| | |
|--------------|--|
| P201 | Obtain special instructions before use. |
| 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. |
| 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. |
| P308+313 | IF exposed or concerned: Get medical advice/attention. |
| P310 | Immediately call a POISON CENTER/doctor. |
| P330 | Rinse mouth. |
| P405 | Store locked up. |

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 dangerous working materials

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 risks related to exposure to carcinogens or mutagens at work SUVA .CH, limit values in the air at work 2009, revised on 01/2009

Regulation 790/2009/EU Adaptation of the CLP Regulation 1272/2008/EU to technical and scientific progress

Regulation 453/2010/EU REACH – REQUIREMENTS FOR THE PREPARATION OF SAFETY DATA SHEET

TRGS 907, German engineering rules for listing substances and causes of sensitization, updated November 2011

Regulation 487/2013/EU, 4. Adaptation of the CLP regulation to technical and scientific progress

TRGS 905, German engineering rules for carcinogenic and mutagenic substances, as of March 18, 2016

Regulation 669/2018/EU, 4. Adaptation of the CLP regulation to technical and scientific progress

Regulation 1480/2018/EU, 4. Adaptation of the CLP regulation to technical and scientific progress

TRGS 900, German engineering rules on limit values in the air at work, as of 03/2019

Regulation 878/2020/EU

Regulation 849/2021/EU, 4. Adaptation of the CLP regulation to technical and scientific progress

Revisions/Updates

Reason for revision: 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary

2014-04 Adjustment of Regulation 487/2013/EU

2016-03 Adjustment of Regulation 1221/2015/EU

2017-11 adaptation of the ECHA registration dossier

2022-11 Adjustment of Regulation 878/2020/EU

16.5 Further information

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product to which the information refers. Accordingly MACHEREY-NAGEL GmbH & Co. KG will not be responsible for damages resulting from use of or reliance upon this information. See terms and conditions at the end of our price lists for additional information.

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
 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: 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: fisch, 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: fisch, 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.: 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



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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.



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