

# Safety Data Sheet

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

|                           |                           |            |
|---------------------------|---------------------------|------------|
| REF: 91862                | NANOCOLOR Nickel          | Page: 1/13 |
| Printing date: 01.10.2019 | Date of issue: 20.05.2019 |            |

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

### 1.1 Product identifier

REF 91862  
 Product name NANOCOLOR Nickel

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 Nickel R1  
 1 x 100 mL Nickel R2  
 1 x 100 mL Nickel R3  
 1 x 100 mL Nickel R4

### 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](mailto:sds@mn-net.com) ([msds@mn-net.com](mailto:msds@mn-net.com))

### 1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.  
 DE: Gemeinsames Giftinformationszentrum (GGIZ) 99089 Erfurt tel. +49 361 730 730

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

## SECTION 2: Hazard identification

### 2.0 Classification of the complete product



GHS02 GHS05 GHS07 GHS08 GHS09

Signal word DANGER

| Hazard identification | Hazard classes/categories |
|-----------------------|---------------------------|
| H225                  | Flam. Liq. 2              |
| H290                  | Met. Corr. 1              |
| H314                  | Skin Corr. 1A             |
| H332                  | Acute Tox. 4 inh.         |
| H335                  | STOT SE 3                 |
| H350                  | Carc. 1B                  |
| H400                  | Aquatic Acute 1           |

### 2.1 Classification of the substance or mixture

100 mL Nickel R1

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 2/13

Printing date: 01.10.2019

Date of issue: 20.05.2019



GHS08

Signal word

DANGER

**Hazard identification**

**Hazard classes/categories**

H350

Carc. 1B

**100 mL Nickel R2**



GHS05



GHS07

Signal word

DANGER

**Hazard identification**

**Hazard classes/categories**

H290

Met. Corr. 1

H314

Skin Corr. 1A

H332

Acute Tox. 4 inh.

**100 mL Nickel R3**



GHS05



GHS07



GHS09

Signal word

DANGER

**Hazard identification**

**Hazard classes/categories**

H314

Skin Corr. 1B

H335

STOT SE 3

H400

Aquatic Acute 1

**100 mL Nickel R4**



GHS02

Signal word

DANGER

**Hazard identification**

**Hazard classes/categories**

H225

Flam. Liq. 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** 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).

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).

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 3/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

## 100 mL Nickel R1



GHS08

Signal word: DANGER

H350

May cause cancer.

P201, P280sh, P308+313, P405

Obtain special instructions before use. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up.

## 100 mL Nickel R2



GHS05



GHS07

Signal word: DANGER

H314

Causes severe skin burns and eye damage.

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

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

## 100 mL Nickel R3



GHS05



GHS07



GHS09

Signal word: DANGER

H314

Causes severe skin burns and eye damage.

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

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

## 100 mL Nickel R4



GHS02

Signal word: DANGER

### 2.3 Other hazards

#### Possible hazards from physicochemical properties

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

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 4/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

## 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 inhalation of vapours/dust, impairments of health when ingested in small quantities. May cause cancer. May cause cancer if inhaled. -

## 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 Nickel R1

|                 |   |             |              |
|-----------------|---|-------------|--------------|
| Chemical:       | <i>potassium bromate</i>                                  | CAS No.:    | 7758-01-2    |
| Classification: | H271, Ox. Sol. 1, H301, Acute Tox. 3 oral, H350, Carc. 1A |             |              |
| Formula:        | KBrO <sub>3</sub>   |             |              |
| Pseudonym:      | bromic acid, potassium salt                               |             |              |
| TSCA Inventory: | listed  |             |              |
| REACH Reg. No.: | 01-2119518844-34-XXXX                                     |             |              |
| EC No.:         | 231-829-8   | Indice No.: | 035-003-00-6 |
| RTECS:          | EF8725000   | MFCID:      | 00011359     |
| KE No.:         | KE-29078  |             |              |
| Concentration:  | 1 - <3 %  |             |              |
| acc. CLP (GHS): | H350, Carc. 1A  |             |              |

#### 100 mL Nickel R2

|  |  |                     |                |
|--|--|---------------------|----------------|
| Chemical:  | <i>ammonium heptamolybdate</i>                                     | CAS No.:            | 12054-85-2     |
| Classification:  | No criteria for classification or naming of chemical not required. |                     |                |
| Formula:   | H <sub>24</sub> Mo <sub>7</sub> N <sub>6</sub> O <sub>24</sub>     |                     |                |
| Pseudonym:   | hexaammonium heptamolybdate  |                     |                |
| TSCA Inventory:  | listed (CAS 11098-84-3)  |                     |                |
| REACH Reg. No.:  | 01-2119498057-28-xxxx  |                     |                |
| EC No.:  | 234-722-4  |                     |                |
| RTECS:   | QA5076000 / QA4900000  | MFCID:              | 00167059       |
| KE No.:  | not listed   |                     |                |
| Concentration:   | 0,5 - <2 %   | Correlation factor: | x 0.58 (= %Mo) |
| 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):  | The criteria for classification are not fulfilled.                 |                     |                |

|                 |  |             |              |
|-----------------|--|-------------|--------------|
| Chemical:       | <i>nitric acid</i>   | CAS No.:    | 7697-37-2    |
| Classification: | H272, Ox. Liq. 2, H290, Met. Corr. 1, H314, Skin Corr. 1B, H331, Acute Tox. 3 inh. |             |              |
| Formula:        | HNO <sub>3</sub> · H <sub>2</sub> O  |             |              |
| Pseudonym:      | Aqua fortis, Engravers acid, hydrogen nitrate                                      |             |              |
| TSCA Inventory: | listed   |             |              |
| REACH Reg. No.: | 01-2119487297-23-xxxx  |             |              |
| EC No.:         | 231-714-2  | Indice No.: | 007-004-00-1 |
| RTECS:          | QU5900000/QU5775000  |             |              |
| KE No.:         | KE-25911, >10% Toxic 97-1-246, Acc. Precaution Chem.                               |             |              |
| Concentration:  | 13 - <20 %   |             |              |
| acc. CLP (GHS): | H290, Met. Corr. 1, H314, Skin Corr. 1B, H332, Acute Tox. 4 inh.                   |             |              |

#### 100 mL Nickel R3

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 5/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

Chemical: *ammonia solution* CAS No.: 1336-21-6  
 Classification: H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1  
 Formula:  $\text{NH}_3 \cdot \text{H}_2\text{O}$   
 Pseudonym: ammonium hydroxide, Aqua ammonia, aqueous ammonia  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119488876-14-xxxx, 01-2119982985-14-XXXX  
 EC No.: 215-647-6 Indice No.: 007-001-01-2  
 RTECS: BQ9625000 MFCD: 00011418  
 KE No.: KE-01688, >10% Toxic 97-1-184  
 Concentration: 10 - <16 %  
 acc. CLP (GHS): H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1

## 100 mL Nickel R4

Chemical: *ethanol* CAS No.: 64-17-5  
 (denatured with 1%IPA/1%MEK, acc.2016/1867/EU)  
 Classification: H225, Flam. Liq. 2  
 Formula:  $\text{C}_2\text{H}_6\text{O}$ ;  $\text{C}_2\text{H}_5\text{OH}$   
 Pseudonym: ethyl alcohol, methylated spirit  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119457610-43-xxxx  
 EC No.: 200-578-6 Indice No.: 603-002-00-5  
 RTECS: KQ6300000 MFCD: 00003568  
 KE No.: KE-13217  
 Concentration: 90 - <98 %  
 acc. CLP (GHS): H225, Flam. Liq. 2

Chemical: *dimethylglyoxime* CAS No.: 95-45-4  
 Classification: H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2  
 Formula:  $\text{C}_4\text{H}_8\text{N}_2\text{O}_2$   
 Pseudonym: diacetyl dioxime, 2,3-butanedione, 2,3-dioxime  
 TSCA Inventory: listed  
 REACH Reg. No.: not necessary, amount <1 t/a  
 EC No.: 202-420-1  
 RTECS: EK2975000 MFCD: 00002117  
 Concentration: 1 - <10 %  
 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 16.1

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor.

#### 4.1.1 After SKIN Contact

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

#### 4.1.2 After EYE Contact

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

#### 4.1.3 After INHALATION of vapours

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

#### 4.1.4 After ORAL Intake

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

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 6/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

## 4.2 Most important symptoms and effects, both acute and delayed

Carcinogenic Effects: May cause cancer. May cause cancer if inhaled. ---

## 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. ---

## 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

**DANGER:** Highly flammable (GHS regulation). Forms 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

not necessary

### 6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water. Collect small amounts of leaked liquid and flush with water into drains.

### 6.4 Reference to other sections

see information in section 5.4 ---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

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

### 7.2 Conditions for safe storage, including any incompatibilities

The original product package of MACHEREY-NAGEL allows a safe storage. Products containing also toxic substances should be kept locked up.

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, 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.

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 7/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### 100 mL Nickel R1

Chemical: *potassium bromate* CAS No.: 7758-01-2  
 NIOSH: not listed  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period  
 OSHA: not listed

#### 100 mL Nickel R2

Chemical: *ammonium heptamolybdate* CAS No.: 12054-85-2  
 TRGS 900 (DE): [Mo] 5 E mg/m<sup>3</sup>  
 E/e respirable  
 SUVA(CH) MAK value: [Mo] 5 e mg/m<sup>3</sup>

#### Chemical: *nitric acid*

CAS No.: 7697-37-2

DNEL: [inh] (1.3) mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC(fresh water): no hazard identified  
 PNEC = Predicted No Effect Concentration

EU value: 1 ppm / 2.6 mg/m<sup>3</sup>  
 TRGS 900 (DE): 1 ppm / 2.6 mg/m<sup>3</sup>  
 E/e respirable

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

SUVA(CH) MAK value: 2 ppm / 5 mg/m<sup>3</sup>  
 NIOSH: [TWA] 2 ppm / 5 mg/m<sup>3</sup>

NIOSH STEL: 4 ppm / 10 mg/m<sup>3</sup>  
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: List of highly hazardous chemicals, toxics and reactives Yes (TQ = 500 lbs) n/a; [TWA] 2 ppm / 5 mg/m<sup>3</sup>

#### 100 mL Nickel R3

Chemical: *ammonia solution* CAS No.: 1336-21-6

DNEL: [inh] 14 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC(fresh water): 0.0011 mg/L no hazard identified  
 PNEC = Predicted No Effect Concentration

EU value: 20 ppm / 14 mg/m<sup>3</sup>  
 TRGS 900 (DE): 20 ppm / 14 mg/m<sup>3</sup>  
 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/m<sup>3</sup>  
 NIOSH: [TWA] 25 ppm / 18 mg/m<sup>3</sup>

NIOSH STEL: 35 ppm / 27 mg/m<sup>3</sup>  
 [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/m<sup>3</sup>

#### 100 mL Nickel R4

Chemical: *ethanol* CAS No.: 64-17-5

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m<sup>3</sup>  
 DNEL = Derived No-Effect Level (for workers)

PNEC(fresh water): 0.96 mg/L no hazard identified  
 PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 200 mL/m<sup>3</sup> / 380 mg/m<sup>3</sup>  
 E/e respirable

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

SUVA(CH) MAK value: 500 ppm / 960 mg/m<sup>3</sup>  
 NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 8/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

Chemical: *dimethylglyoxime*

CAS No.: 95-45-4

## 8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

### 8.2.1 Respiratory protection

No additional recommendations.

### 8.2.2 Hand protection

Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

### 8.2.3 Eye protection

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

### 8.2.4 Skin protection

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

### 8.2.5 Personal hygiene

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

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### 100 mL Nickel R1

Appearance: liquid

Colour: colourless

Odor: odorless

pH:

6-8

Specific gravity:

1,01 g/cm<sup>3</sup>

Solubility in water:

0-100 %

#### 100 mL Nickel R2

Appearance: liquid

Colour: slightly yellow

Odor: penetrative

pH:

0-1

Specific gravity:

1,11 g/cm<sup>3</sup>

Solubility in water:

0-100 %

#### 100 mL Nickel R3

Appearance: liquid

Colour: colourless

Odor: aminic

pH:

9-10

Solubility in water:

0-100 %

#### 100 mL Nickel R4

Appearance: liquid

Colour: slightly yellow

Odor: alcoholic

pH:

6-8

Flash point:

18 °C

Specific gravity:

0,79 g/cm<sup>3</sup>

Solubility in water:

0-100 %

### 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

Substances are very volatile and form flammable vapour-air mixtures. ---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no further data available.

### 10.2 Chemical stability

No known instability.



# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 9/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

## 10.3 Possibility of hazardous reactions

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

## 10.4 Conditions to avoid

Not necessary. Observe labeled storage temperature. ---

## 10.5 Incompatible materials

Avoid contact with strong acids or alkalines.

## 10.6 Hazardous decomposition products

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

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

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

#### 100 mL Nickel R1

|                             |                          |                                 |  |
|-----------------------------|--------------------------|---------------------------------|--|
| Chemical:                   | <i>potassium bromate</i> | CAS No.:                        | 7758-01-2                                  |
| TSCA Inventory:             | listed                   | California Proposition 65 List: | listed cancer                              |
| Australia NICNAS:           | not listed               | Canada CEPA 1999:               | DSI Yes, Toxic Substances (Schedule 1) Yes |
| (Item 124.)                 |                          |                                 |  |
| Japan CSCL/PRTR:            | not listed, Japan PDSCL: |                                 | not listed                                 |
| Japan ISHL:                 | not listed               |                                 |  |
| South Korea TCCA:           | not listed               |                                 |  |
| Korea Exist.Chem.Inventory: | KE-29078                 |                                 |  |
| LD50 <sub>orl rat</sub> :   | 321 mg/kg                |                                 |  |

Carcinogenic Effects: May cause cancer. May cause cancer if inhaled.

EU carcinogen: carc. 1B

TRGS 905 (DE): K1B

#### 100 mL Nickel R2

|                             |                                      |          |            |
|-----------------------------|--------------------------------------|----------|------------|
| Chemical:                   | <i>ammonium heptamolybdate</i>       | CAS No.: | 12054-85-2 |
| TSCA Inventory:             | listed (CAS 11098-84-3)              |          |            |
| Japan ISHL:                 | listed $\geq 1,0\%$ / $\geq 0,1\%$ , |          |            |
| Korea Exist.Chem.Inventory: | not listed                           |          |            |

|                             |  |                                 |                       |
|-----------------------------|--|---------------------------------|-----------------------|
| Chemical:                   | <i>nitric acid</i>   | CAS No.:                        | 7697-37-2             |
| TSCA Inventory:             | listed   | California Proposition 65 List: | not listed            |
| Exposure Routes:            | inhalation, ingestion, skin and/or eye contact   |                                 |                       |
| Target Organs:              | Eyes, skin, respiratory system, teeth  |                                 |                       |
| Symptoms:                   | irritation eyes, skin, mucous membrane; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion |                                 |                       |
| 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-25911, >10% Toxic 97-1-246, Acc. Precaution Chem.   |                                 |                       |
| LC <sub>LoWorl hmn</sub> :  | [NOAEC] 1500 mg/kg   |                                 |                       |
| LC50 <sub>ihl rat</sub> :   | [4h] 2.65 mg/L   |                                 |                       |
| Acute Effects:              | Cause after skin contact, impairments of health when ingested in small quantities.                       |                                 |                       |
| TRGS 905 (DE):              | R <sub>F</sub> D   |                                 |                       |

#### 100 mL Nickel R3

|                   |   |                                 |  |
|-------------------|---|---------------------------------|--|
| Chemical:         | <i>ammonia solution</i>   | 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)  |                                 |  |

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# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 11/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

Chemical: *ammonia solution* CAS No.: 1336-21-6  
 Very toxic to aquatic life. Avoid contact of substance/mixture to environment.  
 Environmental hazards must not be labelled with H and P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).  
 PNEC(fresh water) : 0.0011 mg/Lno hazard identified  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>fish/96h</sub> : 0,89 mg/L  
 EC50<sub>daphnia/48h</sub> : 101 mg/L  
 Water hazard class (DE): 2 WGK No.: 0211  
 Storage class (VCI): 8 B

## 100 mL Nickel R4

Chemical: *ethanol* CAS No.: 64-17-5  
 PNEC(fresh water) : 0.96 mg/Lno hazard identified  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>daphnia magna/48h</sub> : >100 mg/L  
 LC50<sub>pimephales promelas/96h</sub> : 13400 - 15100 mg/L  
 LC50<sub>leuciscus idus/96h</sub> : [48h] 8140 mg/L  
 LC50<sub>fish/96h</sub> : 13 g/L  
 EC50<sub>daphnia/48h</sub> : 9.3-14.2 g/L  
 IC50<sub>scenedesmus quadricauda/72h</sub> : [7d] 5000 mg/L  
 EC10<sub>pseudomonas putita/16h</sub> : [EC5] 6500 mg/L  
 Water hazard class (DE): 1 WGK No.: 0096  
 Dispersion coefficient<sub>(octanol-water)</sub> : -0.31  
 Storage class (VCI): 3

Chemical: *dimethylglyoxime* CAS No.: 95-45-4  
 Water hazard class (DE): 2  
 Storage class (VCI): 12-13

## 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

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

Dispose of contents/container to regulated waste treatment.

## 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:**

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 12/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

**14.1 UN number:** 1993 **14.2 UN proper shipping name:** Flammable liquid, n.o.s. (ethanol mixture)

**14.3 Class:** 3 **14.4 Packing group:** II

*Road transport*

Classification code: F1

Limited Quantity: 1 L

Excepted Quantity: E 2

*Air transport*

PAX: 353

CAO: 364

*Maritime transport*

EmS: F-E, S-E

Tunnel restriction code: E

Special instructions: 640C

max. weight PAX: 5 L

max. weight CAO: 60 L

Storage category: B

**14.1 UN number:** 3264 **14.2 UN proper shipping name:** Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid solution)

**14.3 Class:** 8 **14.4 Packing group:** II

*Road transport*

Classification code: C1

Limited Quantity: 1 L

Excepted Quantity: E 2

*Air transport*

PAX: 851

CAO: 855

*Maritime transport*

EmS: F-A, S-B

Tunnel restriction code: E

max. weight PAX: 1 L

max. weight CAO: 30 L

Storage category: B

## 14.5 Environmental hazards

none, contains only small quantities of hazardous substances

## 14.6 Special precautions for user

not necessary

## 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

not applicable

## SECTION 15: Regulatory information

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

German act governing protection from hazardous substances (Chemicals Act / Chemikaliengesetz- ChemG), revised on August 2013

German order governing protection from hazardous substances (Ordinance on Hazardous Substances / Gefahrstoffverordnung - GefStoffV), revised on November 2010, according to Directive 98/24/EC

TRGS 200, German engineering rules governing the classification and labelling of hazardous substances, preparations and products, updated October 2011

MN Leaflet/User manual, also see [www.mn-net.com](http://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

|      |  |
|------|--|
| H225 | Highly flammable liquid and vapour.      |
| H290 | May be corrosive to metals.              |
| H314 | Causes severe skin burns and eye damage. |
| H332 | Harmful if inhaled.                      |
| H335 | May cause respiratory irritation.        |
| H350 | May cause cancer.                        |
| H400 | Very toxic to aquatic life.              |

#### 16.1.2 List of relevant P phrases

|        |  |
|--------|--|
| P201   | Obtain special instructions before use.                          |
| P210   | Keep away from heat/sparks/open flames/hot surfaces. No smoking. |
| P233   | Keep container tightly closed.                                   |
| P260sh | Do not breathe dust/vapours.                                     |

# Safety Data Sheet

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

REF: 91862

NANOCOLOR Nickel

Page: 13/13

Printing date: 01.10.2019

Date of issue: 20.05.2019

|              |  |
|--------------|--|
| P261sh       | Avoid breathing dust/vapours.  |
| 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.   |
| P390         | Absorb spillage to prevent material damage.  |
| P403+233     | Store in a well-ventilated place. Keep container tightly closed.   |
| 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, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress

Regulation 669/2018/EU, 4<sup>th</sup> 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

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work

TRGS 905, German engineering rules governing carcinogens and mutagens, updated 03/18

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

### Revisions/Updates

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

2017-08 Adaption of new ethanol denaturation 2016/1867/EU