

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.17

Revision Date 14.04.2023

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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

### 1.1 Product identifiers

Product name : Multielement standard solution 5 for ICP

Product Number : 54704

Brand : Sigma-Aldrich

REACH No. : This product is a mixture. REACH Registration Number see section 3.

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Scientific research and development

### 1.3 Details of the supplier of the safety data sheet

Company : Merck Life Science spol. s r. o.  
Na Hřebenech II 1718/10  
CZ-140 00 PRAGUE

Telephone : +420 246 003-251

E-mail address : TechnicalService@merckgroup.com

### 1.4 Emergency telephone

Emergency Phone # : +420 228880039(CHEMTREC)  
+420 224919293/224915402  
(Toxikologické informační středisko)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008

Corrosive to Metals (Category 1), H290  
Skin corrosion (Sub-category 1B), H314  
Serious eye damage (Category 1), H318  
Skin sensitization (Category 1), H317  
Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 Label elements

#### Labelling according Regulation (EC) No 1272/2008



Pictogram



Signal Word

Danger

Hazard statement(s)

H290

May be corrosive to metals.

H314

Causes severe skin burns and eye damage.

H317

May cause an allergic skin reaction.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P234

Keep only in original packaging.

P261

Avoid breathing mist or vapors.

P273

Avoid release to the environment.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard information (EU)

EUH071

Corrosive to the respiratory tract.

### Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Danger

Hazard statement(s)

H317

May cause an allergic skin reaction.

H314

Causes severe skin burns and eye damage.

Precautionary statement(s)

P261

Avoid breathing mist or vapors.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard information (EU)

EUH071

Corrosive to the respiratory tract.

### 2.3 Other hazards

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.



## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

| Component                 |                           | Classification  | Concentration         |
|---------------------------|---------------------------|---|-----------------------|
| <b>nitric acid</b>        |                           |   |                       |
| CAS-No.                   | 7697-37-2                 | Ox. Liq. 3; Met. Corr. 1;<br>Acute Tox. 3; Skin Corr.<br>1A; Eye Dam. 1; H272,<br>H290, H331, H314, H318<br>Concentration limits:<br>>= 1 %: Met. Corr. 1,<br>H290; 1 - < 5 %: Skin<br>Irrit. 2, H315; 1 - < 3 %:<br>Eye Irrit. 2, H319; >= 3<br>%: 1, H318; >= 65 %:<br>Ox. Liq. 3, H272; >= 20<br>%: Skin Corr. 1A, H314; 5<br>- < 20 %: Skin Corr. 1B,<br>H314; >= 3 %: Eye Dam.<br>1, H318; 1 - < 3 %: Eye<br>Irrit. 2, H319; 1 - < 5 %:<br>Skin Irrit. 2, H315;                          | >= 10 - < 20<br>%     |
| EC-No.                    | 231-714-2                 |   |                       |
| Index-No.                 | 007-030-00-3              |   |                       |
| Registration<br>number    | 01-2119487297-23-<br>XXXX |   |                       |
|                           |                           |   |                       |
| <b>nickel(II) nitrate</b> |                           |   |                       |
| CAS-No.                   | 13138-45-9                | Ox. Sol. 2; Acute Tox. 4;<br>Skin Irrit. 2; Eye Dam. 1;<br>Resp. Sens. 1; Skin Sens.<br>1; Muta. 2; Carc. 1A;<br>Repr. 1B; STOT RE 1;<br>Aquatic Acute 1; Aquatic<br>Chronic 1; H272, H302,<br>H332, H315, H318, H334,<br>H317, H341, H350, H360,<br>H372, H400, H410<br>Concentration limits:<br>>= 1 %: STOT RE 1,<br>H372; 0,1 - < 1 %: STOT<br>RE 2, H373; >= 20 %:<br>Skin Irrit. 2, H315; >=<br>0,01 %: Skin Sens. 1,<br>H317;<br>M-Factor - Aquatic Acute:<br>10 - Aquatic Chronic: 10 | >= 0,025 - <<br>0,1 % |
| EC-No.                    | 236-068-5<br><br>*        |   |                       |
| <b>Silver nitrate</b>     |                           |   |                       |
| CAS-No.                   | 7761-88-8                 | Ox. Sol. 2; Met. Corr. 1;<br>Skin Corr. 1B; Eye Dam.<br>1; Aquatic Acute 1;<br>Aquatic Chronic 1; H272,   | >= 0,025 - <<br>0,1 % |
| EC-No.                    | 231-853-9                 |   |                       |
| Index-No.                 | 047-001-00-2              |   |                       |
| Registration              | 01-2119513705-43-         |   |                       |



|   |                       |   |                    |
|---|-----------------------|---|--------------------|
| number  | XXXX                  | H290, H314, H318, H400, H410<br>Concentration limits:<br>>= 1 %: Met. Corr. 1, H290;<br>M-Factor - Aquatic Acute: 1.000 - Aquatic Chronic: 100  |                    |
| <b>Copper(II) nitrate</b>   |                       |   |                    |
| CAS-No.   | 3251-23-8             | Ox. Sol. 2; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; H272, H314, H318, H400, H410<br>M-Factor - Aquatic Acute: 10<br>M-Factor - Aquatic Chronic: 1  | >= 0,025 - < 0,1 % |
| EC-No.  | 221-838-5             |   |                    |
| Registration number   | 01-2119969290-34-XXXX |   |                    |
| <b>Lead(II) nitrate</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH) |                       |   |                    |
| CAS-No.   | 10099-74-8            | Ox. Sol. 2; Acute Tox. 4; Eye Dam. 1; Skin Sens. 1; Carc. 2; Repr. 1A; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H272, H302, H332, H318, H317, H351, H360FD, H372, H400, H410<br>M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 1 | >= 0,025 - < 0,1 % |
| EC-No.  | 233-245-9             |   |                    |
| Index-No.   | 082-001-00-6          |   |                    |
| Registration number   | 01-2119492475-28-XXXX |   |                    |

\*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.



**In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**In case of eye contact**

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed**

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Nitrogen oxides (NO<sub>x</sub>)

Not combustible.

Ambient fire may liberate hazardous vapours.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.



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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® HF, Merck Art. No. 101591). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

For precautions see section 2.2.

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

#### Storage conditions

No metal containers.  
Tightly closed.

#### Storage class

Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

### 8.2 Exposure controls

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

##### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

##### Splash contact

Material: Nitrile rubber



Minimum layer thickness: 0,11 mm  
Break through time: 480 min  
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### **Body Protection**

protective clothing

### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### **Control of environmental exposure**

Do not let product enter drains.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |   |                   |
|---|-------------------|
| a) Physical state                               | liquid            |
| b) Color  | colorless, clear  |
| c) Odor   | No data available |
| d) Melting point/freezing point                 | No data available |
| e) Initial boiling point and boiling range      | No data available |
| f) Flammability (solid, gas)                    | No data available |
| g) Upper/lower flammability or explosive limits | No data available |
| h) Flash point                                  | Not applicable    |
| i) Autoignition temperature                     | Not applicable    |



- |   |  |
|---|--|
| j) Decomposition temperature              | No data available  |
| k) pH                                     | No data available  |
| l) Viscosity                              | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available   |
| m) Water solubility                       | at 20 °C soluble   |
| n) Partition coefficient: n-octanol/water | No data available  |
| o) Vapor pressure                         | No data available  |
| p) Density                                | No data available  |
| Relative density                          | No data available  |
| q) Relative vapor density                 | No data available  |
| r) Particle characteristics               |  |
| Particle Size Distribution                | D50 = 306,905 µm<br>Type of distribution: volume distribution<br>Measurement method: ISO 13320<br>Measurement technique: laser diffraction |
| r) Particle characteristics               | No data available  |
| s) Explosive properties                   | Not classified as explosive.   |
| t) Oxidizing properties                   | none   |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:  
The generally known reaction partners of water.

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

Strong oxidizing agentsMetals





## 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

##### Skin corrosion/irritation

Remarks: Mixture causes burns.

Remarks: Mixture causes burns.

##### Serious eye damage/eye irritation

Remarks: Mixture causes serious eye damage.

Risk of blindness!

##### Respiratory or skin sensitization

Mixture may cause an allergic skin reaction.

##### Germ cell mutagenicity

No data available

##### Carcinogenicity

No data available

##### Reproductive toxicity

No data available

##### Specific target organ toxicity - single exposure

No data available

##### Specific target organ toxicity - repeated exposure

No data available

##### Aspiration hazard

No data available

### 11.2 Additional Information

#### Endocrine disrupting properties

##### Product:

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.



Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## Components

### nitric acid

#### Acute toxicity

Oral: No data available

Acute toxicity estimate Inhalation - 4 h - 2,65 mg/l - vapor  
(Expert judgment)

Dermal: No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: Causes severe burns.

Remarks: (IUCLID)

Remarks: Causes poorly healing wounds.

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes burns.

Remarks: (IUCLID)

Remarks: Causes serious eye damage.

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

#### Carcinogenicity

No data available

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available



## **nickel(II) nitrate**

### **Acute toxicity**

LD50 Oral - Rat - male - 325 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 1,3 - 4,5 mg/l - dust/mist

(OECD Test Guideline 403)

Dermal: No data available

### **Skin corrosion/irritation**

Skin - Rabbit

Result: Irritating to skin. - 4 h

(OECD Test Guideline 404)

### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes serious eye damage.

(OECD Test Guideline 405)

### **Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: positive

May cause an allergic skin reaction.

(Maximization Test)

### **Germ cell mutagenicity**

In vitro tests showed mutagenic effects which were not observed with in vivo test.

### **Carcinogenicity**

Human carcinogen.

### **Reproductive toxicity**

Presumed human reproductive toxicant

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

### **Aspiration hazard**

No data available



## Silver nitrate

### Acute toxicity

LD50 Oral - Rat - male and female - 3.804 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 0,075 mg/l - aerosol

(OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 2.000 mg/kg

(OECD Test Guideline 402)

### Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE)

Result: Corrosive - 3 - 60 min

(OECD Test Guideline 431)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

### Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

Risk of permanent damage due to staining of the cornea.

### Respiratory or skin sensitization

No data available

### Germ cell mutagenicity

Test Type: Micronucleus test

Test system: Human lymphocytes

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: Positive results were obtained in some in vitro tests.

### Carcinogenicity

No data available

### Reproductive toxicity

No data available

### Specific target organ toxicity - single exposure

No data available

### Specific target organ toxicity - repeated exposure

### Aspiration hazard

No data available

## Copper(II) nitrate

### Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

### Skin corrosion/irritation

Skin - In vitro study

Result: Corrosive



(OECD Test Guideline 431)

**Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

**Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 486

Species: Rat - male

Result: negative

Method: Regulation (EC) No. 440/2008, Annex, B.12

Species: Mouse - male and female

Result: negative

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Lead(II) nitrate**

**Acute toxicity**

Oral: No data available

Acute toxicity estimate Inhalation - 1,6 mg/l - dust/mist

(Expert judgment)

Symptoms: Possible damages:, mucosal irritations

LD50 Dermal - Rat - male and female - > 2.000 mg/kg

(OECD Test Guideline 402)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Lead(II) oxide red

**Skin corrosion/irritation**

Skin - In vitro study

Result: non-corrosive

(OECD Test Guideline 431)

Skin - In vitro study

Result: No skin irritation - 42 min



(OECD Test Guideline 439)

**Serious eye damage/eye irritation**

Eyes - Bovine cornea

Result: Causes serious eye damage. - 4 h

(OECD Test Guideline 437)

**Respiratory or skin sensitization**

Local lymph node assay (LLNA) - Mouse

Result: positive

(OECD Test Guideline 429)

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Remarks: (in analogy to similar products)

(ECHA)

Species: Rat - female - Red blood cells (erythrocytes)

Result: positive

Remarks: (in analogy to similar products)

(ECHA)

The value is given in analogy to the following substances: lead(II) acetate

Species: Monkey - male - lymphocyte

Result: positive

Remarks: (in analogy to similar products)

(ECHA)

Species: Mouse - male - Liver cells

Result: negative

Remarks: (in analogy to similar products)

(ECHA)

**Carcinogenicity**

Suspected of causing cancer.

**Reproductive toxicity**

May damage the unborn child. Positive evidence from human epidemiological studies.

May damage fertility. Positive evidence from human epidemiological studies.

**Specific target organ toxicity - single exposure**

Acute inhalation toxicity - Possible damages: , mucosal irritations

**Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

- Blood, Central nervous system, Immune system, Kidney

**Aspiration hazard**

No data available



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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Mixture

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 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

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

No data available

#### Components

##### nitric acid

No data available

##### nickel(II) nitrate

|   |   |
|---|---|
| Toxicity to fish                                    | semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 15,3 mg/l - 96 h<br>Remarks: (ECHA)                           |
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Ceriodaphnia dubia (water flea) - 0,0744 mg/l - 48 h<br>Remarks: (ECHA)                                  |
| Toxicity to algae                                   | static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 0,0815 - 0,148 mg/l - 72 h<br>(OECD Test Guideline 201) |
| Toxicity to bacteria                                | EC50 - Sludge Treatment - 33 mg/l - 30 min<br>(ISO 8192)  |
| Toxicity to   | flow-through test NOEC - Pimephales promelas (fathead)  |



fish(Chronic toxicity) minnow) - 0,057 mg/l - 32 d  
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) semi-static test NOEC - Ceriodaphnia dubia (water flea) - 0,0053 - 0,0153 mg/l - 7 d  
Remarks: (ECHA)

#### **Silver nitrate**

Toxicity to fish semi-static test LC50 - Pimephales promelas (fathead minnow) - 0,0012 mg/l - 96 h  
(US-EPA)

Toxicity to daphnia and other aquatic invertebrates semi-static test LC50 - Daphnia magna (Water flea) - 0,00022 mg/l - 48 h  
Remarks: (ECHA)

Toxicity to fish(Chronic toxicity) flow-through test NOEC - Pimephales promelas (fathead minnow) - 0,351 mg/l - 32 d  
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) semi-static test EC10 - Ceriodaphnia dubia (water flea) - 0,00248 mg/l - 7 d  
(US-EPA)

#### **Copper(II) nitrate**

Toxicity to fish flow-through test LC50 - Pimephales promelas (fathead minnow) - 0,19 mg/l - 96 h  
Remarks: (ECHA)  
The value is given in analogy to the following substances:  
Copper(II) nitrate trihydrate

Toxicity to daphnia and other aquatic invertebrates static test - Daphnia magna (Water flea)

#### **Lead(II) nitrate**

Toxicity to fish static test LC50 - Oncorhynchus mykiss (rainbow trout) - 0,1 mg/l - 96 h  
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 1,8 mg/l - 48 h  
Remarks: (ECOTOX Database)

Toxicity to algae EC50 - algae - 0,024 - 0,029 mg/l - 28 h  
Remarks: (Lit.)





Toxicity to fish(Chronic toxicity) semi-static test NOEC - Pimephales promelas (fathead minnow) - 1,337 mg/l - 7 d  
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) semi-static test NOEC - Ceriodaphnia dubia (water flea) - 0,0224 mg/l - 7 d (US-EPA)

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 2031

IMDG: 2031

IATA: 2031

### 14.2 UN proper shipping name

ADR/RID: NITRIC ACID

IMDG: NITRIC ACID

IATA: Nitric acid

### 14.3 Transport hazard class(es)

ADR/RID: 8

IMDG: 8

IATA: 8

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

### 14.6 Special precautions for user

Tunnel restriction code : (E)

Further information : No data available

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## SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

#### Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

: Lead(II) nitrate  
Cadmium nitrate



(Annex XVII)

Regulation (EU) 2019/1148 on the marketing and use of explosives precursors : nitric acid

### National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

: ENVIRONMENTAL HAZARDS

### Other regulations

Take note of Dir 94/33/EC on the protection of young people at work.

## 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

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## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3.

|        |  |
|--------|--|
| EUH071 | Corrosive to the respiratory tract.  |
| H272   | May intensify fire; oxidizer.  |
| H290   |  |
| H302   | May be corrosive to metals.  |
| H314   | Harmful if swallowed.  |
| H315   | Causes severe skin burns and eye damage.                                   |
| H317   | Causes skin irritation.  |
| H318   | May cause an allergic skin reaction.                                       |
| H319   | May intensify fire; oxidizer.  |
| H331   | May be corrosive to metals.  |
| H332   | Causes severe skin burns and eye damage.                                   |
| H334   | Toxic if inhaled.  |
| H341   | Causes serious eye damage.   |
| H350   | Causes serious eye irritation.   |
| H351   | Toxic if inhaled.  |
| H360   | May intensify fire; oxidizer.  |
| H360FD | Harmful if inhaled.  |
| H372   | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H373   | Suspected of causing genetic defects.                                      |
| H400   |  |
| H410   | May cause cancer.  |
| H411   | Suspected of causing cancer.   |



## Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

### Classification of the mixture

|                  |      |
|------------------|------|
| Met. Corr.1      | H290 |
| Skin Corr.1B     | H314 |
| Eye Dam.1        | H318 |
| Skin Sens.1      | H317 |
| Aquatic Acute1   | H400 |
| Aquatic Chronic2 | H411 |

### Classification procedure:

|                    |
|--------------------|
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |
| Calculation method |

### Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any



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