

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

**Multielement standard solution 22 elements in nitric acid approx. 2 mol/l 1 Liter contains:  
500 m**

Revision date: 08.04.2022

Product code: 02068

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

#### 1.1. Product identifier

Multielement standard solution 22 elements in nitric acid approx. 2 mol/l 1 Liter contains: 500 m

UFI: 3JQ5-V04Y-R00F-S3KM

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

##### Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

##### Uses advised against

Do not use for private purposes (household).

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

|                         |                                 |                              |
|-------------------------|---------------------------------|------------------------------|
| Company name:           | Fa. Bernd Kraft GmbH            |                              |
| Street:                 | Stempelstraße 6                 |                              |
| Place:                  | D-47167 Duisburg                |                              |
| Telephone:              | 0203/5194-0                     | Telefax: 0203/5194-290       |
| e-mail:                 | info@berndkraft.de              |                              |
| Contact person:         | Abteilung Produktsicherheit     | Telephone: 0203/5194-107/117 |
| e-mail:                 | produktsicherheit@berndkraft.de |                              |
| Internet:               | www.berndkraft.de               |                              |
| Responsible Department: | Abteilung Produktsicherheit     |                              |

#### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

#### Further Information

This product is a mixture. REACH Registration Number see section 3.

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Met. Corr. 1; H290  
Acute Tox. 4; H332  
Skin Corr. 1B; H314  
Eye Dam. 1; H318  
Skin Sens. 1; H317  
Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

#### 2.2. Label elements

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

##### Hazard components for labelling

nitric acid  
nickel dinitrate

**Signal word:** Danger

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**Pictograms:**



**Hazard statements**

- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H332 Harmful if inhaled.
- H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements**

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER/doctor.

**Special labelling of certain mixtures**

- EUH071 Corrosive to the respiratory tract.

**2.3. Other hazards**

No data available

**SECTION 3: Composition/information on ingredients**

**3.2. Mixtures**

**Chemical characterization**

Mixtures in aqueous solution

**Hazardous components**

| CAS No     | Chemical name  |              |                  | Quantity    |
|------------|--|--------------|------------------|-------------|
|            | EC No  | Index No     | REACH No         |             |
|            | Classification (Regulation (EC) No 1272/2008)  |              |                  |             |
| 7697-37-2  | nitric acid  |              |                  | 10 - < 15 % |
|            | 231-714-2  | 007-030-00-3 | 01-2119487297-23 |             |
|            | Ox. Liq. 3, Met. Corr. 1, Acute Tox. 3, Skin Corr. 1A; H272 H290 H331 H314 EUH071  |              |                  |             |
| 13138-45-9 | nickel dinitrate   |              |                  | < 0.1 %     |
|            | 236-068-5  | 028-012-00-1 |                  |             |
|            | Ox. Sol. 2, Carc. 1A, Muta. 2, Repr. 1B, Acute Tox. 4, Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Resp. Sens. 1, Skin Sens. 1, STOT RE 1, Aquatic Acute 1, Aquatic Chronic 1; H272 H350i H341 H360D H332 H302 H315 H318 H334 H317 H372 H400 H410 |              |                  |             |
| 7761-88-8  | silver nitrate   |              |                  | < 0.1 %     |
|            | 231-853-9  | 047-001-00-2 | 01-2119513705-43 |             |
|            | Ox. Sol. 2, Met. Corr. 1, Skin Corr. 1B, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H272 H290 H314 H318 H400 H410   |              |                  |             |

Full text of H and EUH statements: see section 16.

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**Specific Conc. Limits, M-factors and ATE**

| CAS No     | EC No     | Chemical name  | Quantity    |
|------------|-----------|--|-------------|
|            |           | Specific Conc. Limits, M-factors and ATE   |             |
| 7697-37-2  | 231-714-2 | nitric acid  | 10 - < 15 % |
|            |           | inhalation: ATE 2,65 mg/kg (vapours) Ox. Liq. 3; H272: >= 65 - 100 Skin Corr. 1A; H314: >= 20 - 100 Skin Corr. 1B; H314: >= 5 - < 20   |             |
| 13138-45-9 | 236-068-5 | nickel dinitrate   | < 0.1 %     |
|            |           | inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); oral: LD50 = 361,9 mg/kg Skin Irrit. 2; H315: >= 20 - 100 Skin Sens. 1; H317: >= 0,01 - 100 STOT RE 1; H372: >= 1 - 100 STOT RE 2; H373: >= 0,1 - < 1<br>M acute; H400: M=1<br>M chron.; H410: M=1 |             |
| 7761-88-8  | 231-853-9 | silver nitrate   | < 0.1 %     |
|            |           | dermal: LD50 = > 348 mg/kg; oral: LD50 = > 2000 mg/kg M acute; H400: M=1000<br>M chron.; H410: M=100   |             |

**Further Information**

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information**

First aider: Pay attention to self-protection!

**After inhalation**

Provide fresh air.  
If breathing is irregular or stopped, administer artificial respiration.  
Call a physician immediately.

**After contact with skin**

Wash immediately with: Water  
Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

**After contact with eyes**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Protect uninjured eye.

**After ingestion**

Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately. Do not allow a neutralisation agent to be drunk.

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

Irritant — skin irritation and eye damage  
Causes burns.  
Cough  
Dyspnoea  
Risk of serious damage to eyes.  
Vomiting  
Methaemoglobinaemia  
Allergic reactions

**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**

Co-ordinate fire-fighting measures to the fire surroundings.

**Unsuitable extinguishing media**

no restriction

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

Non-combustible liquids

Hazardous combustion products

In case of fire may be liberated:

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

Metal oxide smoke, toxic

**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.

Avoid contact with skin, eyes and clothes.

**Additional information**

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Use water spray jet to protect personnel and to cool endangered containers.

**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

**General advice**

Corrosive to metals.

**For non-emergency personnel**

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Do not breathe dust/fume/gas/mist/vapours/spray.

**For emergency responders**

Precautionary statements For emergency responders : Personal protection equipment: see section 8

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains.

**6.3. Methods and material for containment and cleaning up**

**For containment**

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

**For cleaning up**

Clean contaminated articles and floor according to the environmental legislation.

**Other information**

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

**6.4. Reference to other sections**

Safe handling: see section 7

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Personal protection equipment: see section 8  
Disposal: see section 13

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Advice on safe handling**

Read label before use. Handle and open container with care.  
When using do not eat, drink, smoke, sniff. Use personal protection equipment.  
Provide adequate ventilation. Avoid contact with skin, eyes and clothes.  
Do not breathe vapour/aerosol. Use extractor hood (laboratory).

**Advice on protection against fire and explosion**

Usual measures for fire prevention.

**Advice on general occupational hygiene**

Keep away from food, drink and animal feedingstuffs. Remove contaminated, saturated clothing immediately.  
Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink. Avoid: aerosol or mist formation Do not breathe vapour/aerosol.

**Further information on handling**

Draw up and observe skin protection programme.  
Wash hands and face before breaks and after work and take a shower if necessary.  
Take off immediately all contaminated clothing and wash it before reuse.

**7.2. Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Corrosive to metals.  
Unsuitable container/equipment material: Metal  
The product develops hydrogen in an aqueous solution in contact with metals.

**Further information on storage conditions**

Keep container tightly closed.

**7.3. Specific end use(s)**

Laboratory chemicals

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Occupational exposure limits**

| CAS No    | Substance   | ppm | mg/m <sup>3</sup> | fib/cm <sup>3</sup> | Category      | Origin |
|-----------|-------------|-----|-------------------|---------------------|---------------|--------|
| 7697-37-2 | Nitric acid | 1   | 2.6               |                     | STEL (15 min) |        |

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**DNEL/DMEL values**

| CAS No     | Substance        | DNEL type                | Exposure route | Effect   | Value                   |
|------------|------------------|--------------------------|----------------|----------|-------------------------|
| 13138-45-9 | nickel dinitrate | Consumer DNEL, acute     | oral           | systemic | 0,012 mg/kg bw/day      |
|            |                  | Consumer DNEL, long-term | oral           | systemic | 0,02 mg/kg bw/day       |
|            |                  | Worker DNEL, acute       | inhalation     | systemic | 104 mg/m <sup>3</sup>   |
|            |                  | Worker DNEL, acute       | inhalation     | local    | 1,6 mg/m <sup>3</sup>   |
|            |                  | Consumer DNEL, acute     | inhalation     | systemic | 8,8 mg/m <sup>3</sup>   |
|            |                  | Consumer DNEL, acute     | inhalation     | local    | 0,1 mg/m <sup>3</sup>   |
| 7761-88-8  | silver nitrate   | Consumer DNEL, long-term | oral           | systemic | 0,02 mg/kg bw/day       |
|            |                  | Worker DNEL, long-term   | inhalation     | systemic | 0,016 mg/m <sup>3</sup> |
|            |                  | Consumer DNEL, long-term | inhalation     | systemic | 0,006 mg/m <sup>3</sup> |

**PNEC values**

| CAS No     | Substance        | Environmental compartment                        | Value        |
|------------|------------------|--|--------------|
| 13138-45-9 | nickel dinitrate | Freshwater                                       | 0,0071 mg/l  |
|            |                  | Freshwater (intermittent releases)               | 0 mg/l       |
|            |                  | Marine water                                     | 0,0086 mg/l  |
|            |                  | Freshwater sediment                              | 109 mg/kg    |
|            |                  | Marine sediment                                  | 109 mg/kg    |
|            |                  | Secondary poisoning                              | 0,12 mg/kg   |
|            |                  | Micro-organisms in sewage treatment plants (STP) | 0,33 mg/l    |
|            |                  | Soil   | 29,9 mg/kg   |
| 7761-88-8  | silver nitrate   | Freshwater                                       | 0,00004 mg/l |
|            |                  | Marine water                                     | 0,00086 mg/l |
|            |                  | Freshwater sediment                              | 438,13 mg/kg |
|            |                  | Marine sediment                                  | 438,13 mg/kg |
|            |                  | Micro-organisms in sewage treatment plants (STP) | 0,025 mg/l   |
|            |                  | Soil   | 1,41 mg/kg   |

**8.2. Exposure controls**

**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

goggles

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Wear eye/face protection.

**Hand protection**

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With specification (test according to EN374):

By long-term hand contact

Recommended glove articles: KCL 741 Dermatrill® L  
Recommended material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with permanent contact: > 480 min

By short-term hand contact

Recommended glove articles: KCL 741 Dermatrill® L  
Recommended material: NBR (Nitrile rubber) 0,11 mm  
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

**Skin protection**

Wear suitable protective clothing. Take off immediately all contaminated clothing.  
Wash hands before breaks and after work.

**Respiratory protection**

Respiratory protection necessary at: aerosol or mist formation

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

**SECTION 9: Physical and chemical properties**

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

|                  |                   |
|------------------|-------------------|
| Physical state:  | Liquid            |
| Colour:          | colourless        |
| Odour:           | stinging          |
| Odour threshold: | No data available |

**Changes in the physical state**

|   |                   |
|---|-------------------|
| Melting point/freezing point:                             | No data available |
| Boiling point or initial boiling point and boiling range: | No data available |
| Sublimation point:  | No data available |
| Softening point:  | No data available |
| Pour point:   | No data available |
| No data available:  |                   |
| Flash point:  | No data available |

**Flammability**

|               |                   |
|---------------|-------------------|
| Solid/liquid: | No data available |
| Gas:          | No data available |

**Explosive properties**

No data available

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|  |                   |
|--|-------------------|
| Lower explosion limits:                | No data available |
| Upper explosion limits:                | No data available |
| Auto-ignition temperature:             | No data available |
| <b>Self-ignition temperature</b>       |                   |
| Solid:                                 | No data available |
| Gas:                                   | No data available |
| Decomposition temperature:             | No data available |
| pH-Value:                              | acidic            |
| Viscosity / dynamic:                   | No data available |
| Viscosity / kinematic:                 | No data available |
| Flow time:                             | No data available |
| Water solubility:                      | No data available |
| <b>Solubility in other solvents</b>    |                   |
| No data available                      |                   |
| Dissolution rate:                      | No data available |
| Partition coefficient n-octanol/water: | No data available |
| Dispersion stability:                  | No data available |
| Vapour pressure:                       | No data available |
| Vapour pressure:                       | No data available |
| Density:                               | No data available |
| Relative density:                      | No data available |
| Bulk density:                          | No data available |
| Relative vapour density:               | No data available |
| Particle characteristics:              | No data available |

**9.2. Other information**

**Information with regard to physical hazard classes**

|                        |                   |
|------------------------|-------------------|
| Sustaining combustion: | No data available |
| Oxidizing properties   |                   |
| Oxidizing              |                   |

**Other safety characteristics**

|                          |                   |
|--------------------------|-------------------|
| Solvent separation test: | No data available |
| Solvent content:         | No data available |
| Solid content:           | No data available |
| Evaporation rate:        | No data available |

**Further Information**

Corrosive to metals.

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

Corrosive to metals.  
Oxidising agent, strong

**10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

**10.3. Possibility of hazardous reactions**



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#### Danger of explosion:

Acetone, Alcohol, Aniline, Substance, organic, Benzene, Aniline, Amines, Hydrocarbons, halogenated, Diethyl ether, Hydrazine, Dioxane, Acetic acid, Acetic anhydride, Ethanol, Fluorine, Formaldehyde, Rubber articles, Hydrocarbons, Copper, Powdered metals, Methanol, Phosphorus trichloride, Hydrogen phosphides, Gasoline, Reducing agent, titanium, Toluene, Hydrogen peroxide, tin, Xylene, Dichloromethane, carbon black, Potassium chlorate, permanganates, e.g. potassium permanganate

#### Ignition hazard:

Amines, Ammonia (NH<sub>3</sub>), Combustible substance, aldehydes, Hydrogen iodide (HI), White/yellow phosphor, Hydrogen sulphide (H<sub>2</sub>S), Alkali metals, Alkaline earth metal

#### Violent reaction with:

Nitriles, antimony, arsenic, boron, Alkali (lye), , Formic acid, sulphuric acid, sulphuric acid, sulphuric acid, selenium

#### **10.4. Conditions to avoid**

No data available

#### **10.5. Incompatible materials**

Cellulose, Metal

Keep away from: Metal.

Keep away from combustible material.

The product develops hydrogen in an aqueous solution in contact with metals. / Nitrogen oxides (NO<sub>x</sub>)

#### **10.6. Hazardous decomposition products**

In case of fire may be liberated:

SECTION 5: Firefighting measures

#### **Further information**

No data available

## **SECTION 11: Toxicological information**

### **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

#### **Toxicokinetics, metabolism and distribution**

There are no data available on the preparation/mixture itself.

#### **Acute toxicity**

Harmful if inhaled.

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

Pulmonary oedema

#### **ATEmix calculated**

ATE (inhalation dust/mist) 4,244 mg/l

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| CAS No     | Chemical name        |                   |            |  |                    |
|------------|----------------------|-------------------|------------|--|--------------------|
|            | Exposure route       | Dose              | Species    | Source                                   | Method             |
| 7697-37-2  | nitric acid          |                   |            |  |                    |
|            | inhalation vapour    | ATE 2,65 mg/kg    |            |  |                    |
| 13138-45-9 | nickel dinitrate     |                   |            |  |                    |
|            | oral                 | LD50 361,9 mg/kg  | Rat        | Regul Toxicol and Pharmacol (doi.org/10. | OECD Guideline 425 |
|            | inhalation vapour    | ATE 11 mg/l       |            |  |                    |
|            | inhalation dust/mist | ATE 1,5 mg/l      |            |  |                    |
| 7761-88-8  | silver nitrate       |                   |            |  |                    |
|            | oral                 | LD50 > 2000 mg/kg | Rat        | Study report (1993)                      | OECD Guideline 401 |
|            | dermal               | LD50 > 348 mg/kg  | Guinea pig | J. Vet. Med. Sci.73: 1417 - 1423. (2011) | OECD Guideline 434 |

**Irritation and corrosivity**

Causes severe skin burns and eye damage.  
Causes serious eye damage.

**Sensitising effects**

May cause an allergic skin reaction. (nickel dinitrate)

**Carcinogenic/mutagenic/toxic effects for reproduction**

Based on available data, the classification criteria are not met.

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

Based on available data, the classification criteria are not met.

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**Information on likely routes of exposure**

There are no data available on the preparation/mixture itself.

**Specific effects in experiment on an animal**

There are no data available on the preparation/mixture itself.

**Additional information on tests**

There are no data available on the preparation/mixture itself.

**Practical experience**

There are no data available on the preparation/mixture itself.

**11.2. Information on other hazards**

**Endocrine disrupting properties**

There are no data available on the preparation/mixture itself.

**Other information**

There are no data available on the preparation/mixture itself.

**Further information**

Irritant — skin irritation and eye damage  
Causes burns.  
Cough  
Dyspnoea  
Risk of serious damage to eyes.

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Vomiting  
Methaemoglobinaemia

### SECTION 12: Ecological information

#### 12.1. Toxicity

There are no data available on the mixture itself.

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| CAS No     | Chemical name            |                |                |         |  |   |
|------------|--------------------------|----------------|----------------|---------|--|---|
|            | Aquatic toxicity         | Dose           | [h]   [d]      | Species | Source   | Method  |
| 7697-37-2  | nitric acid              |                |                |         |  |   |
|            | Acute fish toxicity      | LC50<br>mg/l   | 1559           | 96 h    | Topeka shiner                                      | Environmental Toxicology and Chemistry, other: ASTM E729-26                       |
|            | Fish toxicity            | NOEC           | 268 mg/l       | 30 d    | juvenile Topeka shiner and with juvenile Fathead m | Study report (2009) Growth tests estimated the test chemical                      |
|            | Algae toxicity           | NOEC<br>mg/l   | > 419          | 10 d    | several benthic diatoms; see results               | Marine Biology 43:307-315 (1977) Ten cultures of benthic diatoms were iso         |
|            | Acute bacteria toxicity  | (EC50<br>mg/l) | > 1000         | 3 h     | Activated sludge                                   | Study report (2008) OECD Guideline 209  |
| 13138-45-9 | nickel dinitrate         |                |                |         |  |   |
|            | Acute fish toxicity      | LC50<br>mg/l   | 15,3           | 96 h    | Oncorhynchus mykiss                                | Aquatic Toxicology 63 (2003) 65-82 (2003) other: not reported                     |
|            | Acute algae toxicity     | ErC50<br>mg/l  | 0,237          | 72 h    | Ankistrodesmus falcatus                            | Publication (2009) OECD Guideline 201   |
|            | Acute crustacea toxicity | EC50<br>mg/l   | 0,2663         | 48 h    | Ceriodaphnia dubia                                 | Study report (2004) other: American society of testing and m                      |
|            | Fish toxicity            | NOEC<br>mg/l   | 0,057          | 32 d    | Pimephales promelas                                | Water Resources Research Institute. Kent other: ASTM 1980, E-729                  |
|            | Algae toxicity           | NOEC           | 0,6 mg/l       | 14 d    | Anabaena cylindrica                                | Environ. Pollut. (Series A). 25(4):241-2 other: not reported                      |
|            | Crustacea toxicity       | NOEC<br>mg/l   | 0,04           | 42 d    | Daphnia magna                                      | Wat. Res. 24(7):845-852 (1990) Chronic exposure to sublethal concentrat           |
|            | Acute bacteria toxicity  | (EC50          | 33 mg/l)       | 0,5 h   | Activated sludge                                   | Journal of Hazardous Materials. B139:332 ISO 8192                                 |
| 7761-88-8  | silver nitrate           |                |                |         |  |   |
|            | Acute fish toxicity      | LC50<br>mg/l   | 0,0012         | 96 h    | Pimephales promelas                                | Environmental Toxicology and Chemistry. A guideline was not specified. The test   |
|            | Acute algae toxicity     | ErC50<br>mg/l  | 0,0099         | 96 h    | Pseudokirchneriella subcapitata                    | Environmental Science and Technology. 44 eline: U.S. Environmental Protection Age |
|            | Acute crustacea toxicity | EC50<br>mg/l   | 0,00022        | 48 h    | Daphnia magna                                      | Environmental Toxicology and Chemistry. The protective effect of reactive sulphhi |
|            | Fish toxicity            | NOEC           | > 0,00125 mg/l | 73 d    | Oncorhynchus mykiss                                | Environmental Toxicology and Chemistry 2 other: ASTM 1241-98                      |
|            | Algae toxicity           | NOEC<br>mg/l   | 0,0012         | 14 d    | Champia parvula                                    | in Bishop WE, Cardwell RD Heidolph BB (E The toxicity tests lasted 11 days for th |

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|  |                    |              |         |      |                    |   |  |
|--|--------------------|--------------|---------|------|--------------------|---|--|
|  | Crustacea toxicity | NOEC<br>mg/l | 0,00031 | 20 d | Isonychia bicolour | Environmental<br>Toxicology and<br>Chemistry. | 20 day sublethal<br>effects on<br>representati |
|--|--------------------|--------------|---------|------|--------------------|---|--|

**12.2. Persistence and degradability**

There are no data available on the mixture itself.

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**BCF**

| CAS No     | Chemical name    | BCF | Species             | Source               |
|------------|------------------|-----|---------------------|----------------------|
| 13138-45-9 | nickel dinitrate | 23  | Spirodela polyrhiza | Ecotoxicology and en |
| 7761-88-8  | silver nitrate   | 70  | Cyprinus carpio     | Water, Air and Soil  |

**12.4. Mobility in soil**

There are no data available on the mixture itself.

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

There are no data available on the mixture itself.

**12.6. Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

There are no data available on the mixture itself.

**12.7. Other adverse effects**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not empty into drains.

**Contaminated packaging**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Handle contaminated packages in the same way as the substance itself.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

|  |             |
|--|-------------|
| <b>14.1. UN number or ID number:</b>     | UN 2031     |
| <b>14.2. UN proper shipping name:</b>    | NITRIC ACID |
| <b>14.3. Transport hazard class(es):</b> | 8           |
| <b>14.4. Packing group:</b>              | II          |
| Hazard label:                            | 8           |
| Classification code:                     | C1          |
| Limited quantity:                        | 1 L         |
| Excepted quantity:                       | E2          |
| Transport category:                      | 2           |
| Hazard No:                               | 80          |

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Tunnel restriction code: E

**Inland waterways transport (ADN)**

**14.1. UN number or ID number:** UN 2031  
**14.2. UN proper shipping name:** NITRIC ACID  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8  
 Classification code: C1  
 Limited quantity: 1 L  
 Excepted quantity: E2

**Marine transport (IMDG)**

**14.1. UN number or ID number:** UN 2031  
**14.2. UN proper shipping name:** NITRIC ACID  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8  
 Special Provisions: -  
 Limited quantity: 1 L  
 Excepted quantity: E2  
 EmS: F-A, S-B

**Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number or ID number:** UN 2031  
**14.2. UN proper shipping name:** NITRIC ACID  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
 Hazard label: 8  
 Special Provisions: A212  
 Limited quantity Passenger: Forbidden  
 Passenger LQ: Forbidden  
 Excepted quantity: E0  
 IATA-packing instructions - Passenger: Forbidden  
 IATA-max. quantity - Passenger: Forbidden  
 IATA-packing instructions - Cargo: 855  
 IATA-max. quantity - Cargo: 30 L

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**SECTION 15: Regulatory information**

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

**EU regulatory information**

Restrictions on use (REACH, annex XVII):  
Entry 3, Entry 28, Entry 75

**National regulatory information**

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).  
 Water hazard class (D): 3 - highly hazardous to water

**SECTION 16: Other information**

**Changes**

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

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This data sheet contains changes from the previous version in section(s): 1,9,11,12.

**Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]**

| Classification          | Classification procedure |
|-------------------------|--------------------------|
| Met. Corr. 1; H290      | On basis of test data    |
| Acute Tox. 4; H332      | Calculation method       |
| Skin Corr. 1B; H314     | Calculation method       |
| Eye Dam. 1; H318        | Calculation method       |
| Skin Sens. 1; H317      | Calculation method       |
| Aquatic Chronic 3; H412 | Calculation method       |

**Relevant H and EUH statements (number and full text)**

|        |  |
|--------|--|
| H272   | May intensify fire; oxidiser.  |
| H290   | May be corrosive to metals.  |
| H302   | Harmful if swallowed.  |
| H314   | Causes severe skin burns and eye damage.                                   |
| H315   | Causes skin irritation.  |
| H317   | May cause an allergic skin reaction.                                       |
| H318   | Causes serious eye damage.   |
| H331   | Toxic if inhaled.  |
| H332   | Harmful if inhaled.  |
| H334   | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H341   | Suspected of causing genetic defects.                                      |
| H350i  | May cause cancer by inhalation.  |
| H360D  | May damage the unborn child.   |
| H372   | Causes damage to organs through prolonged or repeated exposure.            |
| H400   | Very toxic to aquatic life.  |
| H410   | Very toxic to aquatic life with long lasting effects.                      |
| H412   | Harmful to aquatic life with long lasting effects.                         |
| EUH071 | Corrosive to the respiratory tract.  |

**Further Information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*