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

### 1.1. Product identifier

Multielement-Standardlösung 6 Elemente in Salpetersäure 1 mol/l

### 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
Muta. 1B; H340
Carc. 1A; H350
STOT RE 2; H373
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

### 2.2. Label elements

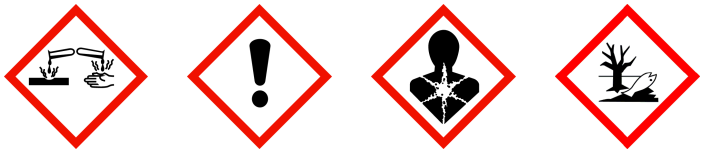
**Regulation (EC) No 1272/2008**

**Hazard components for labelling**

nitric acid
arsenic acid and it salts with the exception of those specified elsewhere in this Annex
nickel dinitrate
cobalt dinitrate
cadmium nitrate; cadmium dinitrate

**Signal word:** Danger

**Pictograms:**



**Hazard statements**

| | |
|---|---|
| H290 | May be corrosive to metals. |
| H332 | Harmful if inhaled. |
| H314 | Causes severe skin burns and eye damage. |
| H317 | May cause an allergic skin reaction. |
| H340 | May cause genetic defects. |
| H350 | May cause cancer. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H411 | Toxic 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 | | | 1 - < 5 % |
| | 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 | | | |
| 7697-37-2 | nitric acid ... % | | | 1 - < 5 % |
| | 231-714-2 | 007-004-00-1 | | |
| | Ox. Liq. 2, Acute Tox. 1, Skin Corr. 1A; H272 H330 H314 EUH071 | | | |
| - | arsenic acid and it salts with the exception of those specified elsewhere in this Annex | | | < 1 % |
| | - | 033-005-00-1 | | |
| | Carc. 1A, Acute Tox. 3, Acute Tox. 3, Aquatic Acute 1, Aquatic Chronic 1; H350 H331 H301 H400 H410 | | | |
| 13138-45-9 | nickel dinitrate | | | < 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 | | | |
| 10141-05-6 | cobalt dinitrate | | | < 1 % |
| | 233-402-1 | 027-009-00-2 | | |
| | Carc. 1B, Muta. 2, Repr. 1B, Resp. Sens. 1, Skin Sens. 1, Aquatic Acute 1, Aquatic Chronic 1; H350i H341 H360F H334 H317 H400 H410 | | | |
| 7803-55-6 | ammonium trioxovanadate | | | < 1 % |
| | 232-261-3 | | | |
| | Repr. 2, Acute Tox. 3, Acute Tox. 4, Eye Irrit. 2, STOT RE 1, Aquatic Chronic 2; H361d H301 H332 H319 H372 H411 | | | |
| 10325-94-7 | cadmium nitrate; cadmium dinitrate | | | < 1 % |
| | 233-710-6 | 048-014-00-6 | | |
| | Carc. 1B, Muta. 1B, Repr. 1B, Acute Tox. 4, Acute Tox. 4, Acute Tox. 4, STOT RE 1, Aquatic Acute 1, Aquatic Chronic 1; H350 H340 H360 H332 H312 H302 H372 H400 H410 | | | |
| 10099-74-8 | lead dinitrate | | | < 1 % |
| | 233-245-9 | 082-001-00-6 | | |
| | Repr. 1A, Acute Tox. 4, Acute Tox. 4, Eye Dam. 1, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1; H360Df H332 H302 H318 H373 H400 H410 | | | |

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

**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 | 1 - < 5 % |
| | 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 | | |
| 7697-37-2 | 231-714-2 | nitric acid ... % | 1 - < 5 % |
| | inhalation: ATE = 0,05 mg/l (vapours); inhalation: ATE = 0,005 mg/l (dusts or mists) Ox. Liq. 2; H272: >= 99 - 100 Ox. Liq. 3; H272: >= 70 - < 99 | | |
| - | - | arsenic acid and it salts with the exception of those specified elsewhere in this Annex | < 1 % |
| | inhalation: ATE = 3 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); oral: ATE = 100 mg/kg | | |
| 13138-45-9 | 236-068-5 | nickel dinitrate | < 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 | | |
| 10141-05-6 | 233-402-1 | cobalt dinitrate | < 1 % |
| | Carc. 1B; H350i: >= 0,01 - 100<br>M acute; H400: M=10<br>M chron.; H410: M=10 | | |
| 7803-55-6 | 232-261-3 | ammonium trioxovanadate | < 1 % |
| | inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = 2,61 mg/l (dusts or mists); dermal: LD50 = > 2500 mg/kg; oral: LD50 = 218,1 mg/kg | | |
| 10325-94-7 | 233-710-6 | cadmium nitrate; cadmium dinitrate | < 1 % |
| | inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: ATE = 1100 mg/kg; oral: ATE = 500 mg/kg Carc. 1B; H350: >= 0,01 - 100 | | |
| 10099-74-8 | 233-245-9 | lead dinitrate | < 1 % |
| | inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 2000 mg/kg Repr. 2; H361f: >= 2,5 - 100 STOT RE 2; H373: >= 0,5 - 100 | | |

**Further Information**

No data available

## 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.
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. Do not allow a neutralisation agent to be drunk.
Call a physician immediately.

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

Causes burns.
Irritant
Cough
Dyspnoea
Vomiting
Methaemoglobinaemia
Risk of serious damage to eyes.
Allergic reactions

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

No data available

## 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 (NOx)
Metal oxide smoke, toxic

**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.
In case of fire and/or explosion do not breathe fumes.
Avoid contact with skin, eyes and clothes.

**Additional information**

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Move undamaged containers from immediate hazard area if it can be done safely.
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
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.
When using do not eat, drink, smoke, sniff.
Handle and open container with care.
Use personal protection equipment.
Provide adequate ventilation.
Do not breathe vapour/aerosol.
Avoid contact with skin, eyes and clothes.
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.
Store in a place accessible by authorized persons only.

### 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/m³ | fib/cm³ | Category | Origin |
|---|---|---|---|---|---|---|
| 7697-37-2 | Nitric acid | 1 | 2.6 | | STEL (15 min) | |

**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/m³ |
| Worker DNEL, acute | | inhalation | local | 1,6 mg/m³ |
| Consumer DNEL, acute | | inhalation | systemic | 8,8 mg/m³ |
| Consumer DNEL, acute | | inhalation | local | 0,1 mg/m³ |
| 7803-55-6 | ammonium trioxovanadate | | | |
| Worker DNEL, long-term | | inhalation | systemic | 0,64 mg/m³ |
| Worker DNEL, long-term | | inhalation | local | 0,18 mg/m³ |
| Worker DNEL, acute | | inhalation | local | 0,92 mg/m³ |
| Consumer DNEL, long-term | | inhalation | systemic | 0,18 mg/m³ |
| Consumer DNEL, long-term | | inhalation | local | 0,11 mg/m³ |
| Consumer DNEL, acute | | inhalation | local | 0,57 mg/m³ |
| Consumer DNEL, long-term | | oral | systemic | 0,18 mg/kg bw/day |
| Consumer DNEL, acute | | oral | systemic | 0,92 mg/kg bw/day |

**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 |
| 7803-55-6 | ammonium trioxovanadate |
| Freshwater | 0,0076 mg/l |
| Freshwater (intermittent releases) | 0,00693 mg/l |
| Marine water | 0,0025 mg/l |
| Freshwater sediment | 240 mg/kg |
| Marine sediment | 79 mg/kg |
| Secondary poisoning | 0,167 mg/kg |
| Micro-organisms in sewage treatment plants (STP) | 0,45 mg/l |
| Soil | 7,2 mg/kg |
| 10099-74-8 | lead dinitrate |
| Freshwater | 0,0065 mg/l |
| Marine water | 0,0034 mg/l |
| Freshwater sediment | 174 mg/kg |
| Marine sediment | 164 mg/kg |
| Secondary poisoning | 10,9 mg/kg |
| Micro-organisms in sewage treatment plants (STP) | 0,1 mg/l |
| Soil | 147 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

Wear eye/face protection.

**Hand protection**

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With

specification (test according to EN374):

By long-term hand contact
Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact
Trade name/designation: KCL 741 Dermatril® 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).

**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: | clear |
| Odour: | odourless |
| 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

| | |
|---|---|
| Lower explosion limits: | No data available |
| Upper explosion limits: | No data available |
| Auto-ignition temperature: | No data available |

**Self-ignition temperature**

| | |
|---|---|
| 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: | completely miscible |

**Solubility in other solvents**

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: | 1,03 g/cm³ |
| 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

No data available

**Other safety characteristics**

| | |
|---|---|
| Solvent separation test: | No data available |
| Solvent content: | 0 |
| Solid content: | 0 |
| Evaporation rate: | No data available |

**Further Information**

Corrosive to metals.

# SECTION 10: Stability and reactivity

## 10.1. Reactivity

Corrosive to metals.
Oxidising agent

## 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

## 10.3. Possibility of hazardous reactions

Alkali (lye)
The product develops hydrogen in an aqueous solution in contact with metals.
Amines, Ammonia, Alcohols, Alkali metals, Hydrogen peroxide
Copper, Combustible solids, Solvent, Alkaline earth metal, mercury (Hg).

### 10.4. Conditions to avoid

No data available

### 10.5. Incompatible materials

Cellulose
Metal
The product develops hydrogen in an aqueous solution in contact with metals.

### 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

**Toxicocinetics, metabolism and distribution**

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

**Acute toxicity**

Harmful if inhaled.

| CAS No | Chemical name | | | | |
|---|---|---|---|---|---|
| | Exposure route | Dose | Species | Source | Method |
| 7697-37-2 | nitric acid | | | | |
| | inhalation vapour | ATE 2,65 mg/kg | | | |
| 7697-37-2 | nitric acid ... % | | | | |
| | inhalation vapour | ATE 0,05 mg/l | | | |
| | inhalation dust/mist | ATE 0,005 mg/l | | | |
| - | arsenic acid and it salts with the exception of those specified elsewhere in this Annex | | | | |
| | oral | ATE 100 mg/kg | | | |
| | inhalation vapour | ATE 3 mg/l | | | |
| | inhalation dust/mist | ATE 0,5 mg/l | | | |
| 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 | | | |
| 7803-55-6 | ammonium trioxovanadate | | | | |
| | oral | LD50 218,1 mg/kg | Rat | Study report (1992) | OECD Guideline 401 |
| | dermal | LD50 > 2500 mg/kg | Rat | Study report (1992) | OECD Guideline 402 |
| | inhalation vapour | ATE 11 mg/l | | | |
| | inhalation (4 h) dust/mist | LC50 2,61 mg/l | Rat | Study report (1992) | OECD Guideline 403 |
| 10325-94-7 | cadmium nitrate; cadmium dinitrate | | | | |
| | oral | ATE 500 mg/kg | | | |
| | dermal | ATE 1100 mg/kg | | | |
| | inhalation vapour | ATE 11 mg/l | | | |
| | inhalation dust/mist | ATE 1,5 mg/l | | | |
| 10099-74-8 | lead dinitrate | | | | |
| | oral | LD50 > 2000 mg/kg | Rat | Study report (2003) | OECD Guideline 423 |
| | dermal | LD50 > 2000 mg/kg | Rat | Study report (2003) | OECD Guideline 402 |
| | inhalation vapour | ATE 11 mg/l | | | |
| | inhalation dust/mist | ATE 1,5 mg/l | | | |

**Irritation and corrosivity**

Causes severe skin burns and eye damage.
Causes serious eye damage.
Following ingestion Gastric perforation
Irritating to respiratory system.
Pulmonary oedema

**Sensitising effects**

May cause an allergic skin reaction. (nickel dinitrate; cobalt dinitrate)

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

May cause genetic defects. (cadmium nitrate; cadmium dinitrate)
May cause cancer. (arsenic acid and it salts with the exception of those specified elsewhere in this Annex; nickel dinitrate; cobalt dinitrate; cadmium nitrate; cadmium dinitrate)
Reproductive toxicity: 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**

May cause damage to organs through prolonged or repeated exposure. (nickel dinitrate)

**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**

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

## SECTION 12: Ecological information

**12.1. Toxicity**

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

| CAS No | Chemical name | | | | | | |
|---|---|---|---|---|---|---|---|
| | Aquatic toxicity | Dose | | [h] \| [d] | Species | Source | Method |
| 7697-37-2 | nitric acid | | | | | | |
| | Acute fish toxicity | LC50 | 1559 mg/l | 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 | > 419 mg/l | 10 d | several benthic diatoms; see results | Marine Biology 43:307-315 (1977) | Ten cultures of benthic diatoms were iso |
| | Acute bacteria toxicity | (EC50 | > 1000 mg/l) | 3 h | Activated sludge | Study report (2008) | OECD Guideline 209 |
| 7697-37-2 | nitric acid ... % | | | | | | |
| | Acute fish toxicity | LC50 | 1559 mg/l | 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 | > 419 mg/l | 10 d | several benthic diatoms; see results | Marine Biology 43:307-315 (1977) | Ten cultures of benthic diatoms were iso |
| | Acute bacteria toxicity | (EC50 | > 1000 mg/l) | 3 h | Activated sludge | Study report (2008) | OECD Guideline 209 |
| 13138-45-9 | nickel dinitrate | | | | | | |
| | Acute fish toxicity | LC50 | 15,3 mg/l | 96 h | Oncorhynchus mykiss | Aquatic Toxicology 63 (2003) 65-82 (2003 | other: not reported |
| | Acute algae toxicity | ErC50 | 0,237 mg/l | 72 h | Ankistrodesmus falcatus | Publication (2009) | OECD Guideline 201 |
| | Acute crustacea toxicity | EC50 | 0,2663 mg/l | 48 h | Ceriodaphnia dubia | Study report (2004) | other: American society of testing and m |
| | Fish toxicity | NOEC | 0,057 mg/l | 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 | 0,04 mg/l | 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 |
| 7803-55-6 | ammonium trioxovanadate | | | | | | |
| | Acute fish toxicity | LC50 | 3,17 mg/l | 96 h | Gasterosteus aculeatus | Environmental Toxicology 20:18–22. (2005 | EPA OPPTS 850.1075 |
| | Acute algae toxicity | ErC50 | 2,907 mg/l | 72 h | Desmodesmus subspicatus | Study report (1999) | OECD Guideline 201 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Acute crustacea toxicity | EC50 mg/l | 1,52 | 48 h | Daphnia magna | Study report (1978) | 48h mortality test with daphnids |
| | Fish toxicity | NOEC mg/l | >= 0,48 | 28 d | Jordanella floridae | Water Research 13:905-910. (1979) | Different groups of fish were continuous |
| | Crustacea toxicity | NOEC mg/l | 1,344 | 23 d | Daphnia magna | Bulletin of Environmental Contamination | other: 84/449/EEC: given by the Commissi |
| | Acute bacteria toxicity | (EC50 mg/l) | > 100 | 3 h | activated sludge of a predominantly domestic sewag | Study report (2010) | OECD Guideline 209 |
| 10099-74-8 | lead dinitrate | | | | | | |
| | Acute fish toxicity | LC50 mg/l | 1,17 | 96 h | Oncorhynchus mykiss | Publication (1976) | Acute bioassays |
| | Acute algae toxicity | ErC50 mg/l | 0,123 | 72 h | Pseudokirchneriella subcapitata | Study report (2008) | OECD Guideline 201 |
| | Acute crustacea toxicity | EC50 mg/l | 0,59683 | 48 h | Ceriodaphnia dubia | Study report (2007) | other: USEP |
| | Fish toxicity | NOEC mg/l | 0,087 | 62 d | Oncorhynchus mykiss | Publication (2008) | methods adapted from the standard guide |
| | Crustacea toxicity | NOEC mg/l | 0,099 | 7 d | Ceriodaphnia dubia | Publication (1995) | chronic toxicity testing of lead to aqua |

### 12.2. Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3. Bioaccumulative potential

There are no data available on the mixture itself.

**Partition coefficient n-octanol/water**

| CAS No | Chemical name | Log Pow |
|---|---|---|
| 7697-37-2 | nitric acid ... % | -0,21 |

**BCF**

| CAS No | Chemical name | BCF | Species | Source |
|---|---|---|---|---|
| 13138-45-9 | nickel dinitrate | 23 | Spirodela polyrhiza | Ecotoxicology and en |
| 7803-55-6 | ammonium trioxovanadate | < 0,036 | Lactuca sativa | Study report (2003) |
| 10099-74-8 | lead dinitrate | 3250 | Hyalella azteca | Hydrobiologya 259: 7 |

### 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.

### 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 preparation/mixture itself.

**Further information**

Do not allow to enter into surface water or drains.

Discharge into the environment must be avoided.

## 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**

Handle contaminated packages in the same way as the substance itself.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
Dispose of waste according to "Kreislaufwirtschafts- und Abfallgesetz (KrW-/AbfG)".

## SECTION 14: Transport information

**Land transport (ADR/RID)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 3264 |
| **14.2. UN proper shipping name:** | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8 |
| Classification code: | C1 |
| Special Provisions: | 274 |
| Limited quantity: | 1 L |
| Excepted quantity: | E2 |
| Transport category: | 2 |
| Hazard No: | 80 |
| Tunnel restriction code: | E |

**Inland waterways transport (ADN)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 3264 |
| **14.2. UN proper shipping name:** | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8 |
| Classification code: | C1 |
| Special Provisions: | 274 |
| Limited quantity: | 1 L |
| Excepted quantity: | E2 |

**Marine transport (IMDG)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 3264 |
| **14.2. UN proper shipping name:** | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric acid) |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8 |
| Special Provisions: | 274 |
| 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 3264 |
| **14.2. UN proper shipping name:** | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric acid) |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8 |
| Special Provisions: | A3 A803 |

| | | |
|---|---|---|
| Limited quantity Passenger: | 0.5 L | |
| Passenger LQ: | Y840 | |
| Excepted quantity: | E2 | |
| IATA-packing instructions - Passenger: | | 851 |
| IATA-max. quantity - Passenger: | | 1 L |
| IATA-packing instructions - Cargo: | | 855 |
| IATA-max. quantity - Cargo: | | 30 L |

### 14.5. Environmental hazards

| | |
|---|---|
| ENVIRONMENTALLY HAZARDOUS: | Yes |
| Danger releasing substance: | Cobaltdinitrate |

## SECTION 15: Regulatory information

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

**EU regulatory information**

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):
arsenic acid and it salts with the exception of those specified elsewhere in this Annex; cobalt dinitrate; cadmium nitrate; cadmium dinitrate; lead dinitrate

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 23, Entry 28, Entry 63, Entry 65, Entry 75

Information according to 2012/18/EU (SEVESO III): E2 Hazardous to the Aquatic Environment

**National regulatory information**

| | |
|---|---|
| Employment restrictions: | Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age. |
| Water hazard class (D): | 3 - highly hazardous to water |

## SECTION 16: Other information

**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 | |
| Skin Corr. 1B; H314 | Calculation method |
| Eye Dam. 1; H318 | Calculation method |
| Skin Sens. 1; H317 | Calculation method |
| Muta. 1B; H340 | Calculation method |
| Carc. 1A; H350 | Calculation method |
| STOT RE 2; H373 | Calculation method |
| Aquatic Chronic 2; H411 | Calculation method |

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

| | |
|---|---|
| H272 | May intensify fire; oxidiser. |
| H290 | May be corrosive to metals. |
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H312 | Harmful in contact with skin. |

| | |
|---|---|
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H330 | Fatal if inhaled. |
| H331 | Toxic if inhaled. |
| H332 | Harmful if inhaled. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H340 | May cause genetic defects. |
| H341 | Suspected of causing genetic defects. |
| H350 | May cause cancer. |
| H350i | May cause cancer by inhalation. |
| H360 | May damage fertility or the unborn child. |
| H360D | May damage the unborn child. |
| H360Df | May damage the unborn child. Suspected of damaging fertility. |
| H360F | May damage fertility. |
| H361d | Suspected of damaging the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H411 | Toxic 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.)*