

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**
Version: **2.0 en**
Replaces version of: 03.05.2021
Version: (1)

date of compilation: 03.05.2021
Revision: 17.10.2022

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

1.1 Product identifier

| | |
|---------------------------------|--|
| Identification of the substance | Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l |
| Article number | 1K39 |
| Registration number (REACH) | not relevant (mixture) |

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

| | |
|---------------------------|---|
| Relevant identified uses: | Laboratory chemical Laboratory and analytical use |
| Uses advised against: | Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). |

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone:+49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: :Department Health, Safety and Environment

e-mail (competent person): **sicherheit@carlroth.de**

1.4 Emergency telephone number

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|--|-----------|---------------------------|------------------|
| 2.16 | Substance or mixture corrosive to metals | 1 | Met. Corr. 1 | H290 |
| 3.2 | Skin corrosion/irritation | 1 | Skin Corr. 1 | H314 |
| 3.3 | Serious eye damage/eye irritation | 1 | Eye Dam. 1 | H318 |
| 3.4S | Skin sensitisation | 1 | Skin Sens. 1 | H317 |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

Supplemental hazard information

| Code | Supplemental hazard information |
|--------|------------------------------------|
| EUH071 | corrosive to the respiratory tract |

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word

Danger

Pictograms

GHS05, GHS07



Hazard statements

H290 May be corrosive to metals
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction

Precautionary statements

Precautionary statements - prevention

P280 Wear protective gloves/protective clothing/eye protection/face protection

Supplemental hazard information

EUH071 Corrosive to the respiratory tract.

Hazardous ingredients for labelling: Nitric acid ...% [C ≤ 70 %]

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
EUH071 Corrosive to the respiratory tract.
contains: Nitric acid ...% [C ≤ 70 %]

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

| Name of substance | Identifier | Wt% | Classification acc. to GHS | Pictograms | Notes |
|-----------------------------|--|----------|--|------------|--|
| Nitric acid ...% [C ≤ 70 %] | CAS No 7697-37-2 EC No 231-714-2 Index No 007-030-00-3 | 5 - < 10 | Ox. Liq. 3 / H272 Met. Corr. 1 / H290 Acute Tox. 3 / H331 Skin Corr. 1A / H314 Eye Dam. 1 / H318 EUH071 | | B(a) GHS-HC IOELV |
| Lead(II) nitrate | CAS No 10099-74-8 EC No 233-245-9 Index No 082-001-00-6 | 0,04 | Acute Tox. 4 / H302 Acute Tox. 4 / H332 Repr. 1A / H360Df STOT RE 1 / H372 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410 | | 1(a) A(a) GHS-HC IARC: 2A IOELV |
| Silver nitrate | CAS No 7761-88-8 EC No 231-853-9 Index No 047-001-00-2 | 0,038 | Ox. Sol. 2 / H272 Met. Corr. 1 / H290 Skin Corr. 1B / H314 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410 | | GHS-HC |
| Cadmium | CAS No 7440-43-9 EC No 231-152-8 Index No 048-002-00-0 | 0,02 | Acute Tox. 2 / H330 Muta. 2 / H341 Carc. 1B / H350 Repr. 2 / H361fd STOT RE 1 / H372 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410 | | GHS-HC IARC: 1 IOELV RoC "Known" |

Notes

- 1(a): The concentration stated is the percentage by weight of the metallic element calculated with reference to the total weight of the mixture
- A(a): The name of substance is a general description. It is required that the correct name is stated on the label
- B(a): The classification refers to an aqueous solution
- GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)
- IARC: 1: IARC group 1: carcinogenic to humans (International Agency for Research on Cancer)
- IARC: 2A: IARC group 2A: probably carcinogenic to humans (International Agency for Research on Cancer)
- 2A:
- IOELV: Substance with a community indicative occupational exposure limit value
- RoC NTP-RoC: Known To Be A Human Carcinogen
- "Known"
- :

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

| Name of sub-stance | Identifier | Specific Conc. Limits | M-Factors | ATE | Exposure route |
|-----------------------------|--|--|---|--------------------------|-----------------------------------|
| Nitric acid ...% [C ≤ 70 %] | CAS No 7697-37-2 EC No 231-714-2 Index No 007-030-00-3 | Ox. Liq. 3; H272: C ≥ 65 % Skin Corr. 1A; H314: C ≥ 20 % Skin Corr. 1B; H314: 5 % ≤ C < 20 % | - | 2,65 mg/l/4h | inhalation: va- pour |
| Lead(II) nitrate | CAS No 10099-74-8 EC No 233-245-9 Index No 082-001-00-6 | Repr. 1A; H360D: C ≥ 0,3 % Repr. 2; H361f: C ≥ 2,5 % STOT RE 2; H373: C ≥ 0,5 % | M-factor (acute) = 10 | 500 mg/kg 1,5 mg/l/4h | oral inhalation: dust/ mist |
| Silver nitrate | CAS No 7761-88-8 EC No 231-853-9 Index No 047-001-00-2 | - | M-factor (acute) = 100 M-factor (chronic) = 100 | - | |
| Cadmium | CAS No 7440-43-9 EC No 231-152-8 Index No 048-002-00-0 | - | M-factor (acute) = 10 | 0,05 mg/l/4h | inhalation: dust/ mist |

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure. In case of skin reactions, consult a physician.

Following eye contact

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. Protect uninjured eye.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a physician immediately. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

4.2 Most important symptoms and effects, both acute and delayed

Corrosion, Risk of blindness, Gastric perforation, Risk of serious damage to eyes, Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products

In case of fire may be liberated: Nitrogen oxides (NO_x)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions

Keep away from drains, surface and ground water. The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

Advice on how to clean up a spill

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

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use extractor hood (laboratory). Handle and open container with care. Clear contaminated areas thoroughly.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
|---------|----------------|-----------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|-------------|-------------|
| EU | lead compounds | | IOELV | | 0,15 | | | | | | 2022/431/EU |
| EU | cadmium | 7440-43-9 | IOELV | | 0,001 | | | | | i, Cd-limit | 2019/983/EU |
| EU | nitric acid | 7697-37-2 | IOELV | | | 1 | 2,6 | | | | 2006/15/EC |
| EU | arsenic acid | 7778-39-4 | IOELV | | 0,01 | | | | | i, As-limit | 2019/983/EU |
| MT | lead compounds | | OELV | | 0,15 | | | | | | CAP. 424 |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 %

HNO₃ - mg/l

article number: 1K39

| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
|---------|---------------|-----------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|----------|
| MT | nitric acid | 7697-37-2 | OELV | | | 1 | 2,6 | | | | CAP. 424 |

Notation

| | |
|-----------|--|
| As-limit | For the copper smelting sector, the limit value shall apply from 11 July 2023 |
| Cd-limit | Limit value 0,004 mg/m ³ until 11 July 2027 |
| Ceiling-C | Ceiling value is a limit value above which exposure should not occur |
| i | Inhalable fraction |
| STEL | Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified) |
| TWA | Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified) |

Relevant DNELs of components of the mixture

| Name of substance | CAS No | End-point | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
|-------------------|-----------|-----------|-------------------------|------------------------------------|-------------------|----------------------------|
| Silver nitrate | 7761-88-8 | DNEL | 0,016 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Cadmium | 7440-43-9 | DNEL | 4 µg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |

Relevant PNECs of components of the mixture

| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
|-------------------|-----------|-----------|-----------------|-----------------------|------------------------------|------------------------------|
| Silver nitrate | 7761-88-8 | PNEC | 0,04 µg/l | aquatic organisms | freshwater | short-term (single instance) |
| Silver nitrate | 7761-88-8 | PNEC | 0,86 µg/l | aquatic organisms | marine water | short-term (single instance) |
| Silver nitrate | 7761-88-8 | PNEC | 0,025 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Silver nitrate | 7761-88-8 | PNEC | 438,1 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Silver nitrate | 7761-88-8 | PNEC | 438,1 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Silver nitrate | 7761-88-8 | PNEC | 1,41 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Cadmium | 7440-43-9 | PNEC | 0,19 µg/l | aquatic organisms | freshwater | short-term (single instance) |
| Cadmium | 7440-43-9 | PNEC | 1,14 µg/l | aquatic organisms | marine water | short-term (single instance) |
| Cadmium | 7440-43-9 | PNEC | 20 µg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Cadmium | 7440-43-9 | PNEC | 1,8 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Cadmium | 7440-43-9 | PNEC | 0,64 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

| Relevant PNECs of components of the mixture | | | | | | |
|---|-----------|-----------|-----------------|-----------------------|---------------------------|------------------------------|
| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| Cadmium | 7440-43-9 | PNEC | 0,9 mg/kg | terrestrial organisms | soil | short-term (single instance) |

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection. Wear face protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. 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. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

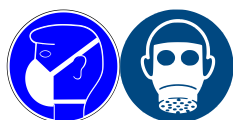
• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: B-P2 (combined filters for acidic gases and particles, colour code: Grey/White).

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|---|
| Physical state | liquid |
| Colour | colourless - light yellow |
| Odour | stinging |
| Melting point/freezing point | 0 °C |
| Boiling point or initial boiling point and boiling range | 100 °C (unknown) |
| Flammability | non-combustible |
| Lower and upper explosion limit | not determined |
| Flash point | not determined |
| Auto-ignition temperature | not determined |
| Decomposition temperature | not relevant |
| pH (value) | <2 (in aqueous solution: 50,6 g/l, 20 °C) |
| Kinematic viscosity | not determined |
| <u>Solubility(ies)</u> | |
| Water solubility | miscible in any proportion |
| <u>Partition coefficient</u> | |
| Partition coefficient n-octanol/water (log value): | not relevant (inorganic) |
| Vapour pressure | not determined |
| <u>Density and/or relative density</u> | |
| Density | ~ 1 g/cm ³ at 20 °C |
| Relative vapour density | information on this property is not available |
| Particle characteristics | not relevant (liquid) |
| <u>Other safety parameters</u> | |
| Oxidising properties | none |

9.2 Other information

Information with regard to physical hazard classes:

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

| | |
|-------------------------------|---------------------------------|
| Corrosive to metals | category 1: corrosive to metals |
| Other safety characteristics: | |
| Miscibility | completely miscible with water |

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture corrosive to metals.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: Ammonia (NH₃), Bases, Metals, Reducing agents, Strong alkali, Organic solvents

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

different metals (due to the release of hydrogen in an acid/alkaline medium)

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

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

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Shall not be classified as acutely toxic.

| Acute toxicity estimate (ATE) of components of the mixture | | | |
|--|------------|-----------------------|--------------|
| Name of substance | CAS No | Exposure route | ATE |
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | inhalation: vapour | 2,65 mg/l/4h |
| Lead(II) nitrate | 10099-74-8 | oral | 500 mg/kg |
| Lead(II) nitrate | 10099-74-8 | inhalation: dust/mist | 1,5 mg/l/4h |
| Cadmium | 7440-43-9 | inhalation: dust/mist | 0,05 mg/l/4h |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

| Acute toxicity of components of the mixture | | | | | |
|---|------------|--------------------|----------|---------------|---------|
| Name of substance | CAS No | Exposure route | Endpoint | Value | Species |
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | inhalation: vapour | LC50 | >2,65 mg/l/4h | rat |
| Lead(II) nitrate | 10099-74-8 | oral | LD50 | >2.000 mg/kg | rat |
| Lead(II) nitrate | 10099-74-8 | dermal | LD50 | >2.000 mg/kg | rat |
| Silver nitrate | 7761-88-8 | oral | LD50 | >2.000 mg/kg | rat |
| Silver nitrate | 7761-88-8 | dermal | LD50 | >2.000 mg/kg | rat |
| Cadmium | 7440-43-9 | oral | LD50 | 2.330 mg/kg | rat |

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

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

• If in eyes

causes burns, Causes serious eye damage, risk of blindness

• If inhaled

corrosive to the respiratory tract, cough, Dyspnoea

• If on skin

causes severe burns, causes poorly healing wounds, May produce an allergic reaction, pruritis, localised redness

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

• Other information

none

11.2 Endocrine disrupting properties

None of the ingredients are listed.

11.3 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

| Aquatic toxicity (acute) of components of the mixture | | | | | |
|---|------------|----------|------------|-----------------------|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Lead(II) nitrate | 10099-74-8 | LC50 | 107 µg/l | fish | 96 h |
| Lead(II) nitrate | 10099-74-8 | ErC50 | 35,9 µg/l | algae | 48 h |
| Silver nitrate | 7761-88-8 | LC50 | 1,2 µg/l | fish | 96 h |
| Cadmium | 7440-43-9 | LC50 | 58,16 µg/l | aquatic invertebrates | 48 h |
| Cadmium | 7440-43-9 | EC50 | 1.900 µg/l | aquatic invertebrates | 24 h |
| Cadmium | 7440-43-9 | ErC50 | 120 µg/l | algae | 72 h |

| Aquatic toxicity (chronic) of components of the mixture | | | | | |
|---|-----------|----------|------------|-----------------------|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Silver nitrate | 7761-88-8 | EC50 | 0,8 µg/l | aquatic invertebrates | 7 d |
| Cadmium | 7440-43-9 | LC50 | 1.500 µg/l | fish | 4 d |
| Cadmium | 7440-43-9 | EC50 | 8,1 µg/l | fish | 100 d |

Biodegradation

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

12.2 Process of degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

| Bioaccumulative potential of components of the mixture | | | | |
|--|-----------|-----|---------|----------|
| Name of substance | CAS No | BCF | Log KOW | BOD5/COD |
| Silver nitrate | 7761-88-8 | 70 | | |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

None of the ingredients are listed.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

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

Properties of waste which render it hazardous

HP 6 acute toxicity

HP 8 corrosive

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number or ID number

ADR UN 2031

IMDG-Code UN 2031

ICAO-TI UN 2031

14.2 UN proper shipping name

ADR NITRIC ACID

IMDG-Code NITRIC ACID

ICAO-TI Nitric acid

14.3 Transport hazard class(es)

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

| | |
|-----------|---|
| ADR | 8 |
| IMDG-Code | 8 |
| ICAO-TI | 8 |

14.4 Packing group

| | |
|-----------|----|
| ADR | II |
| IMDG-Code | II |
| ICAO-TI | II |

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

| | |
|---------------------------------------|---------------------------------|
| Proper shipping name | NITRIC ACID |
| Particulars in the transport document | UN2031, NITRIC ACID, 8, II, (E) |
| Classification code | C1 |
| Danger label(s) | 8 |



| | |
|-------------------------------|-----|
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| Transport category (TC) | 2 |
| Tunnel restriction code (TRC) | E |
| Hazard identification No | 80 |

International Maritime Dangerous Goods Code (IMDG) - Additional information

| | |
|--|----------------------------|
| Proper shipping name | NITRIC ACID |
| Particulars in the shipper's declaration | UN2031, NITRIC ACID, 8, II |
| Marine pollutant | - |
| Danger label(s) | 8 |



| | |
|--------------------------|-----|
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

EmS F-A, S-B

Stowage category D

Segregation group 1 - Acids

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Proper shipping name Nitric acid

Particulars in the shipper's declaration UN2031, Nitric acid, 8, II

Danger label(s) 8



Excepted quantities (EQ) E2

Limited quantities (LQ) 0,5 L

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

| Dangerous substances with restrictions (REACH, Annex XVII) | | | | |
|--|--|--------|---------------|----|
| Name of substance | Name acc. to inventory | CAS No | Restriction | No |
| Multi-Element | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC | | R3 | 3 |
| Lead(II) nitrate | toxic for reproduction | | R28-30 | 30 |
| Lead(II) nitrate | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Lead(II) nitrate | lead compounds | | R63 | 63 |
| Lead(II) nitrate | lead compounds | | R72 R72_Pb | 72 |
| Cadmium | carcinogenic | | R28-30 | 28 |
| Cadmium | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Nitric acid ...% [C ≤ 70 %] | substances in tattoo inks and permanent make-up | | R75 | 75 |
| Silver nitrate | substances in tattoo inks and permanent make-up | | R75 | 75 |

Legend

R28-30 1. Shall not be placed on the market, or used,
- as substances,
- as constituents of other substances, or,
- in mixtures,
for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than:
- either the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008, or,
- the relevant generic concentration limit specified in Part 3 of Annex I of Regulation (EC) No 1272/2008.
Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows:

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

Legend

'Restricted to professional users'

2. By way of derogation, paragraph 1 shall not apply to:

(a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC;

(b) cosmetic products as defined by Directive 76/768/EEC;

(c) the following fuels and oil products:

- motor fuels which are covered by Directive 98/70/EC,

- mineral oil products intended for use as fuel in mobile or fixed combustion plants,

- fuels sold in closed systems (e.g. liquid gas bottles);

(d) artists' paints covered by Regulation (EC) No 1272/2008;

(e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date;

(f) devices covered by Regulation (EU) 2017/745.

R3

1. Shall not be used in:

- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,

- tricks and jokes,

- games for one or more participants, or any article intended to be used as such, even with ornamental aspects,

2. Articles not complying with paragraph 1 shall not be placed on the market.

3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:

— can be used as fuel in decorative oil lamps for supply to the general public, and

— present an aspiration hazard and are labelled with H304.

4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).

5. Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:

(a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";

(b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter fluid may lead to life threatening lung damage';

(c) lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

Legend

- R63
1. Shall not be placed on the market or used in any individual part of jewellery articles if the concentration of lead (expressed as metal) in such a part is equal to or greater than 0,05 % by weight.
 2. For the purposes of paragraph 1:
 - (i) 'jewellery articles' shall include jewellery and imitation jewellery articles and hair accessories, including:
 - (a) bracelets, necklaces and rings;
 - (b) piercing jewellery;
 - (c) wrist watches and wrist-wear;
 - (d) brooches and cufflinks;
 - (ii) 'any individual part' shall include the materials from which the jewellery is made, as well as the individual components of the jewellery articles.
 3. Paragraph 1 shall also apply to individual parts when placed on the market or used for jewellery-making.
 4. By way of derogation, paragraph 1 shall not apply to:
 - (a) crystal glass as defined in Annex I (categories 1, 2, 3 and 4) to Council Directive 69/493/EEC (14);
 - (b) internal components of watch timepieces inaccessible to consumers;
 - (c) non-synthetic or reconstructed precious and semiprecious stones (CN code 7103, as established by Regulation (EEC) No 2658/87), unless they have been treated with lead or its compounds or mixtures containing these substances;
 - (d) enamels, defined as vitrifiable mixtures resulting from the fusion, vitrification or sintering of minerals melted at a temperature of at least 500 °C.
 5. By way of derogation, paragraph 1 shall not apply to jewellery articles placed on the market for the first time before 9 October 2013 and jewellery articles produced before 10 December 1961.
 6. By 9 October 2017, the Commission shall re-evaluate paragraphs 1 to 5 of this entry in the light of new scientific information, including the availability of alternatives and the migration of lead from the articles referred to in paragraph 1 and, if appropriate, modify this entry accordingly.
 7. Shall not be placed on the market or used in articles supplied to the general public, if the concentration of lead (expressed as metal) in those articles or accessible parts thereof is equal to or greater than 0,05 % by weight, and those articles or accessible parts thereof may, during normal or reasonably foreseeable conditions of use, be placed in the mouth by children.

That limit shall not apply where it can be demonstrated that the rate of lead release from such an article or any such accessible part of an article, whether coated or uncoated, does not exceed 0,05 µg/cm² per hour (equivalent to 0,05 µg/g/h), and, for coated articles, that the coating is sufficient to ensure that this release rate is not exceeded for a period of at least two years of normal or reasonably foreseeable conditions of use of the article.

For the purposes of this paragraph, it is considered that an article or accessible part of an article may be placed in the mouth by children if it is smaller than 5 cm in one dimension or has a detachable or protruding part of that size.
 8. By way of derogation, paragraph 7 shall not apply to:
 - (a) jewellery articles covered by paragraph 1;
 - (b) crystal glass as defined in Annex I (categories 1, 2, 3 and 4) to Directive 69/493/EEC;
 - (c) non-synthetic or reconstructed precious and semi-precious stones (CN code 7103 as established by Regulation (EEC) No 2658/87) unless they have been treated with lead or its compounds or mixtures containing these substances;
 - (d) enamels, defined as vitrifiable mixtures resulting from the fusion, vitrification or sintering of mineral melted at a temperature of at least 500 °C;
 - (e) keys and locks, including padlocks;
 - (f) musical instruments;
 - (g) articles and parts of articles comprising brass alloys, if the concentration of lead (expressed as metal) in the brass alloy does not exceed 0,5 % by weight;
 - (h) the tips of writing instruments;
 - (i) religious articles;
 - (j) portable zinc-carbon batteries and button cell batteries;
 - (k) articles within the scope of:
 - (i) Directive 94/62/EC;
 - (ii) Regulation (EC) No 1935/2004;
 - (iii) Directive 2009/48/EC of the European Parliament and of the Council (1);
 - (iv) Directive 2011/65/EU of the European Parliament and of the Council (2)
 9. By 1 July 2019, the Commission shall re-evaluate paragraphs 7 and 8(e), (f), (i) and (j) of this entry in the light of new scientific information, including the availability of alternatives and the migration of lead from the articles referred to in paragraph 7, including the requirement on coating integrity, and, if appropriate, modify this entry accordingly.
 10. By way of derogation paragraph 7 shall not apply to articles placed on the market for the first time before 1 June 2016.
 11. Doing either of the following acts after 15 February 2023 in or within 100 metres of wetlands is prohibited:
 - (a) discharging gunshot containing a concentration of lead (expressed as metal) equal to or greater than 1 % by weight;
 - (b) carrying any such gunshot where this occurs while out wetland shooting or as part of going wetland shooting.

For the purposes of the first subparagraph:

 - (a) "within 100 metres of wetlands" means within 100 metres outward from any outer boundary point of a wetland;
 - (b) "wetland shooting" means shooting in or within 100 metres of wetlands;
 - (c) if a person is found carrying gunshot in or within 100 metres of wetlands while out shooting or as part of going shooting, the shooting concerned shall be presumed to be wetland shooting unless that person can demonstrate that it was some other type of shooting.

The restriction laid down in the first subparagraph shall not apply in a Member State if that Member State notifies the Commission in accordance with paragraph 12 that it intends to make use of the option granted by that paragraph.
 12. If at least 20 % in total of the territory, excluding the territorial waters, of a Member State are wetlands, that Member State may, in place of the restriction laid down in the first subparagraph of paragraph 11, prohibit the following acts throughout the whole of its territory from 15 February 2024:
 - (a) the placing on the market of gunshot containing a concentration of lead (expressed as metal) equal to or greater than 1 % by weight;
 - (b) the discharging of any such gunshot;
 - (c) carrying any such gunshot while out shooting or as part of going shooting.

Any Member State intending to make use of the option granted by the first subparagraph shall notify the Commission of this intention by 15 August 2021. The Member State shall communicate the text of the national measures adopted by it to the Commission without delay and in any event by 15 August 2023. The Commission shall make publicly available without delay any such notices of intention and texts of national measures received by it.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

Legend

13. For the purposes of paragraphs 11 and 12:

(a) "wetlands" means areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 metres;

(b) "gunshot" means pellets used or intended for use in a single charge or cartridge in a shotgun;

(c) "shotgun" means a smooth-bore gun, excluding airguns;

(d) "shooting" means any shooting with a shotgun;

(e) "carrying" means any carrying on the person or carrying or transporting by any other means;

(f) in determining whether a person found with gunshot is carrying gunshot "as part of going shooting":

(i) regard shall be had to all the circumstances of the case;

(ii) the person found with the gunshot need not necessarily be the same person as the person shooting.

14. Member States may maintain national provisions for protection of the environment or human health in force on 15 February 2021 and restricting lead in gunshot more severely than provided for in paragraph 11.

The Member State shall communicate the text of those national provisions to the Commission without delay. The Commission shall make publicly available without delay any such texts of national provisions received by it.

R72
R72_Pb 1. Shall not be placed on the market after 1 November 2020 in any of the following:

(a) clothing or related accessories;

(b) textiles other than clothing which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing;

(c) footwear;

if the clothing, related accessory, textile other than clothing or footwear is for use by consumers and the substance is present in a concentration, measured in homogeneous material, equal to or greater than that specified for that substance in Appendix 12.

2. By way of derogation, in relation to the placing on the market of formaldehyde [CAS No 50-00-0] in jackets, coats or upholstery, the relevant concentration for the purposes of paragraph 1 shall be 300 mg/kg during the period between 1 November 2020 and 1 November 2023. The concentration specified in Appendix 12 shall apply thereafter.

3. Paragraph 1 shall not apply to:

(a) clothing, related accessories or footwear, or parts of clothing, related accessories or footwear, made exclusively of natural leather, fur or hide;

(b) non-textile fasteners and non-textile decorative attachments;

(c) second-hand clothing, related accessories, textiles other than clothing or footwear

(d) wall-to-wall carpets and textile floor coverings for indoor use, rugs and runners.

4. Paragraph 1 shall not apply to clothing, related accessories, textiles other than clothing, or footwear within the scope of Regulation (EU) 2016/425 of the European Parliament and of the Council (*) or Regulation (EU) 2017/745 of the European Parliament and of the Council (**).

5. Paragraph 1(b) shall not apply to disposable textiles. 'Disposable textiles' means textiles that are designed to be used only once or for a limited time and are not intended for subsequent use for the same or a similar purpose.

6. Paragraphs 1 and 2 shall apply without prejudice to the application of any stricter restrictions set out in this Annex or in other applicable Union legislation.

7. The Commission shall review the exemption in paragraph 3(d) and, if appropriate, modify that point accordingly.

(*) Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC (OJ L 81, 31.3.2016, p. 51).

(**) Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices, amending Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC (OJ L 117, 5.5.2017, p. 1).

Appendix 12 (maximum concentration limits by weight in homogeneous materials): 1 mg/kg after extraction (expressed as Pb metal that can be extracted from the material)

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

Legend

- R75
1. Shall not be placed on the market in mixtures for use for tattooing purposes, and mixtures containing any such substances shall not be used for tattooing purposes, after 4 January 2022 if the substance or substances in question is or are present in the following circumstances:
 - (a) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (b) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as reproductive toxicant category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (c) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin sensitiser category 1, 1A or 1B, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (d) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2, or as serious eye damage category 1 or eye irritant category 2, the substance is present in the mixture in a concentration equal to or greater than:
 - (i) 0,1 % by weight, if the substance is used solely as a pH regulator;
 - (ii) 0,01 % by weight, in all other cases;
 - (e) in the case of a substance listed in Annex II to Regulation (EC) No 1223/2009 (*1), the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (f) in the case of a substance for which a condition of one or more of the following kinds is specified in column g (Product type, Body parts) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight:
 - (i) "Rinse-off products";
 - (ii) "Not to be used in products applied on mucous membranes";
 - (iii) "Not to be used in eye products";
 - (g) in the case of a substance for which a condition is specified in column h (Maximum concentration in ready for use preparation) or column i (Other) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration, or in some other way, that does not accord with the condition specified in that column;
 - (h) in the case of a substance listed in Appendix 13 to this Annex, the substance is present in the mixture in a concentration equal to or greater than the concentration limit specified for that substance in that Appendix.
 2. For the purposes of this entry use of a mixture "for tattooing purposes" means injection or introduction of the mixture into a person's skin, mucous membrane or eyeball, by any process or procedure (including procedures commonly referred to as permanent make-up, cosmetic tattooing, micro-blading and micro-pigmentation), with the aim of making a mark or design on his or her body.
 3. If a substance not listed in Appendix 13 falls within more than one of points (a) to (g) of paragraph 1, the strictest concentration limit laid down in the points in question shall apply to that substance. If a substance listed in Appendix 13 also falls within one or more of points (a) to (g) of paragraph 1, the concentration limit laid down in point (h) of paragraph 1 shall apply to that substance.
 4. By way of derogation, paragraph 1 shall not apply to the following substances until 4 January 2023:
 - (a) Pigment Blue 15:3 (CI 74160, EC No 205-685-1, CAS No 147-14-8);
 - (b) Pigment Green 7 (CI 74260, EC No 215-524-7, CAS No 1328-53-6).
 5. If Part 3 of Annex VI to Regulation (EC) No 1272/2008 is amended after 4 January 2021 to classify or re-classify a substance such that the substance then becomes caught by point (a), (b), (c) or (d) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the date of application of that new or revised classification is after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect on the date of application of that new or revised classification.
 6. If Annex II or Annex IV to Regulation (EC) No 1223/2009 is amended after 4 January 2021 to list or change the listing of a substance such that the substance then becomes caught by point (e), (f) or (g) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the amendment takes effect after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect from the date falling 18 months after entry into force of the act by which that amendment was made.
 7. Suppliers placing a mixture on the market for use for tattooing purposes shall ensure that, after 4 January 2022, the mixture is marked with the following information:
 - (a) the statement "Mixture for use in tattoos or permanent make-up";
 - (b) a reference number to uniquely identify the batch;
 - (c) the list of ingredients in accordance with the nomenclature established in the glossary of common ingredient names pursuant to Article 33 of Regulation (EC) No 1223/2009, or in the absence of a common ingredient name, the IUPAC name. In the absence of a common ingredient name or IUPAC name, the CAS and EC number. Ingredients shall be listed in descending order by weight or volume of the ingredients at the time of formulation. "Ingredient" means any substance added during the process of formulation and present in the mixture for use for tattooing purposes. Impurities shall not be regarded as ingredients. If the name of a substance, used as ingredient within the meaning of this entry, is already required to be stated on the label in accordance with Regulation (EC) No 1272/2008, that ingredient does not need to be marked in accordance with this Regulation;
 - (d) the additional statement "pH regulator" for substances falling under point (d)(i) of paragraph 1;
 - (e) the statement "Contains nickel. Can cause allergic reactions." if the mixture contains nickel below the concentration limit specified in Appendix 13;
 - (f) the statement "Contains chromium (VI). Can cause allergic reactions." if the mixture contains chromium (VI) below the concentration limit specified in Appendix 13;
 - (g) safety instructions for use insofar as they are not already required to be stated on the label by Regulation (EC) No 1272/2008.
- The information shall be clearly visible, easily legible and marked in a way that is indelible.
The information shall be written in the official language(s) of the Member State(s) where the mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise.
Where necessary because of the size of the package, the information listed in the first subparagraph, except for point (a), shall be included instead in the instructions for use.
Before using a mixture for tattooing purposes, the person using the mixture shall provide the person undergoing the procedure with the information marked on the package or included in the instructions for use pursuant to this paragraph.

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

Legend

8. Mixtures that do not contain the statement "Mixture for use in tattoos or permanent make-up" shall not be used for tattooing purposes.
9. This entry does not apply to substances that are gases at temperature of 20 °C and pressure of 101,3 kPa, or generate a vapour pressure of more than 300 kPa at temperature of 50 °C, with the exception of formaldehyde (CAS No 50-00-0, EC No 200-001-8).
10. This entry does not apply to the placing on the market of a mixture for use for tattooing purposes, or to the use of a mixture for tattooing purposes, when placed on the market exclusively as a medical device or an accessory to a medical device, within the meaning of Regulation (EU) 2017/745, or when used exclusively as a medical device or an accessory to a medical device, within the same meaning. Where the placing on the market or use may not be exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and of this Regulation shall apply cumulatively.

Seveso Directive

| 2012/18/EU (Seveso III) | | | |
|-------------------------|---------------------------------------|---|-------|
| No | Dangerous substance/hazard categories | Qualifying quantity (tonnes) for the application of lower and upper-tier requirements | Notes |
| | not assigned | | |

Deco-Paint Directive

| | |
|-------------|--------------|
| VOC content | 0 % 0 g/l |
|-------------|--------------|

Industrial Emissions Directive (IED)

| | |
|-------------|-------|
| VOC content | 0 % |
| VOC content | 0 g/l |

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

| Hazardous substances in electrical and electronic equipment (RoHS) | |
|--|---|
| Name acc. to inventory | Maximum concentration values tolerated by weight in homogeneous materials |
| cadmium | 0,01 % Cd |

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

| Pollutant release and transfer registers (PRTR) | | | |
|---|-----------|---------|---|
| Name of substance | CAS No | Remarks | Threshold for releases to air (kg/year) |
| Cadmium | 7440-43-9 | (8) | 10 |

Legend

- (8) All metals shall be reported as the total mass of the element in all chemical forms present in the release

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

Water Framework Directive (WFD)

| List of pollutants (WFD) | | | | |
|--------------------------|---|-----------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| Lead(II) nitrate | lead compounds | | b) | |
| Lead(II) nitrate | lead compounds | 7439-92-1 | c) | |
| Lead(II) nitrate | Substances which contribute to eutrophication (in particular, nitrates and phosphates) | | a) | |
| Lead(II) nitrate | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | a) | |
| Lead(II) nitrate | Metals and their compounds | | a) | |
| Cadmium | cadmium | 7440-43-9 | b) | HAZ |
| Cadmium | cadmium compounds | | b) | HAZ |
| Cadmium | Cadmium and its compounds (depending on water hardness classes) | 7440-43-9 | c) | |
| Cadmium | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | a) | |
| Cadmium | Metals and their compounds | | a) | |
| Silver nitrate | Substances which contribute to eutrophication (in particular, nitrates and phosphates) | | a) | |
| Silver nitrate | Metals and their compounds | | a) | |

Legend

- A) Indicative list of the main pollutants
- B) List of priority substances in the field of water policy
- C) Environmental Quality Standards for Priority Substances and certain other pollutants
- HAZ Identified as priority hazardous substance

Regulation on the marketing and use of explosives precursors

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

| Explosives precursors which are subject to restrictions | | | | | | |
|---|-----------|-----|----------------------|--------------|----------------|---|
| Name of substance | CAS No | Wt% | Type of registration | Re- marks | Limit value | Upper limit value for the purpose of licens- ing un- der Art- icle 5(3) |
| Nitric acid ...% [C ≤ 70 %] | 7697-37-2 | 5 | Annex I | | 3 % w/w | 10 % w/w |

Legend

annex I Substances which shall not be made available to members of the general public on their own, or in mixtures or substances including them, except if the concentration is equal to or lower than the limit values set out below

Additional statements

If the product is passed on to third parties, in accordance with Article 7 "Notification of the supply chain" of Regulation EU 2019/1148, the information obligation is subject to the entire supply chain and all other provisions mentioned in Article 7 on restricted and regulated raw materials.

Regulation on drug precursors

none of the ingredients are listed

Regulation on substances that deplete the ozone layer (ODS)

none of the ingredients are listed

Regulation concerning the export and import of hazardous chemicals (PIC)

chemicals subject to the international prior informed consent (PIC) procedure (the 'PIC procedure').

| Name of substance | Name acc. to inventory | CAS No | Wt% | Category / subcat- egory | Use limita- tion |
|-------------------|------------------------|-----------|------|--------------------------------|---------------------|
| Lead(II) nitrate | lead compounds | | 0,04 | i(2) | sr |
| Cadmium | cadmium | 7440-43-9 | 0,02 | i(1) i(2) | sr sr |

Legend

i(1) Sub-category: i(1) - industrial chemical for professional use

i(2) Sub-category: i(2) - industrial chemical for public use

sr Use limitation: severe restriction (for the sub-category or sub-categories concerned) according to Union legislation

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

| Country | Inventory | Status |
|---------|------------|--------------------------------|
| AU | AIIC | all ingredients are listed |
| CA | DSL | all ingredients are listed |
| CN | IECSC | all ingredients are listed |
| EU | ECSI | all ingredients are listed |
| EU | REACH Reg. | all ingredients are listed |
| JP | CSCL-ENCS | not all ingredients are listed |
| JP | ISHA-ENCS | not all ingredients are listed |
| KR | KECI | all ingredients are listed |
| MX | INSQ | all ingredients are listed |
| NZ | NZIoC | all ingredients are listed |
| PH | PICCS | all ingredients are listed |
| TR | CICR | not all ingredients are listed |
| TW | TCSI | all ingredients are listed |
| US | TSCA | all ingredients are listed |

Legend

| | |
|------------|---|
| AIIC | Australian Inventory of Industrial Chemicals |
| CICR | Chemical Inventory and Control Regulation |
| CSCL-ENCS | List of Existing and New Chemical Substances (CSCL-ENCS) |
| DSL | Domestic Substances List (DSL) |
| ECSI | EC Substance Inventory (EINECS, ELINCS, NLP) |
| IECSC | Inventory of Existing Chemical Substances Produced or Imported in China |
| INSQ | National Inventory of Chemical Substances |
| ISHA-ENCS | Inventory of Existing and New Chemical Substances (ISHA-ENCS) |
| KECI | Korea Existing Chemicals Inventory |
| NZIoC | New Zealand Inventory of Chemicals |
| PICCS | Philippine Inventory of Chemicals and Chemical Substances (PICCS) |
| REACH Reg. | REACH registered substances |
| TCSI | Taiwan Chemical Substance Inventory |
| TSCA | Toxic Substance Control Act |

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Alignment to regulation: Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU

Restructuring: section 9, section 14

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|-------------------------------------|--|-----------------|
| 2.2 | | Precautionary statements - prevention: change in the listing (table) | yes |
| 2.2 | Precautionary statements - response | | yes |
| 2.2 | | Precautionary statements - response: change in the listing (table) | yes |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|--|---|-----------------|
| 2.2 | Hazardous ingredients for labelling: Nickel dinitrate, Nitric acid ...% | Hazardous ingredients for labelling: Nitric acid ...% [C ≤ 70 %] | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |
| 2.2 | contains: Nickel dinitrate, Nitric acid ...% | contains: Nitric acid ...% [C ≤ 70 %] | yes |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------------|--|
| 2006/15/EC | Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC |
| 2019/983/EU | Directive of the European Parliament and of the Council amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work |
| 2022/431/EU | Directive (EU) 2022/431 of the European Parliament and of the Council of 9 March 2022 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work |
| Acute Tox. | Acute toxicity |
| ADN | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways) |
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| Aquatic Acute | Hazardous to the aquatic environment - acute hazard |
| Aquatic Chronic | Hazardous to the aquatic environment - chronic hazard |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BOD | Biochemical Oxygen Demand |
| CAP. 424 | Occupational Health and Safety Authority Act (CAP. 424) |
| Carc. | Carcinogenicity |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |
| COD | Chemical oxygen demand |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| DNEL | Derived No-Effect Level |
| EC50 | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

| Abbr. | Descriptions of used abbreviations |
|------------|--|
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| ErC50 | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control |
| Eye Dam. | Seriously damaging to the eye |
| Eye Irrit. | Irritant to the eye |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| index No | The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 |
| IOELV | Indicative occupational exposure limit value |
| LC50 | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval |
| LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval |
| log KOW | n-Octanol/water |
| Met. Corr. | Substance or mixture corrosive to metals |
| M-factor | Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present |
| Muta. | Germ cell mutagenicity |
| NLP | No-Longer Polymer |
| NTP-RoC | National Toxicology Program: Report on Carcinogens |
| Ox. Liq. | Oxidising liquid |
| Ox. Sol. | Oxidising solid |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| Repr. | Reproductive toxicity |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: 1K39

| Abbr. | Descriptions of used abbreviations |
|-------------|--|
| Skin Corr. | Corrosive to skin |
| Skin Irrit. | Irritant to skin |
| STEL | Short-term exposure limit |
| STOT RE | Specific target organ toxicity - repeated exposure |
| TWA | Time-weighted average |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and very Bioaccumulative |

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture.

Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|--------|--|
| H272 | May intensify fire; oxidiser. |
| H290 | May be corrosive to metals. |
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H330 | Fatal if inhaled. |
| H331 | Toxic if inhaled. |
| H332 | Harmful if inhaled. |
| H341 | Suspected of causing genetic defects. |
| H350 | May cause cancer. |
| H360Df | May damage the unborn child. Suspected of damaging fertility. |
| H361fd | Suspected of damaging fertility. Suspected of damaging 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. |

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Multi-Element ICP - Standard Solution CR-02 ROTI®Star 15 elements in 5 % HNO₃ - mg/l

article number: **1K39**

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.