# Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice

**Multi-Element ICP - Standard Solution CR-17 ROTI®Star 6 elements in 5 % $HNO_3$**

article number: **1P7E**
Version: **GHS 1.0 en**

date of compilation: 2022-04-21

## 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-17 ROTI®Star 6 elements in 5 % $HNO_3$

Article number: 1P7E

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

Relevant identified uses: Laboratory and analytical use
Laboratory chemical

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

| Name | Street | Postal code/city | Telephone | Website |
|---|---|---|---|---|
| NSW Poisons Information Centre Childrens Hospital | Hawkesbury Road | 2145 Westmead, NSW | 131126 | |

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification acc. to GHS**

| Section | Hazard class | Category | Hazard class and category | Hazard statement |
|---|---|---|---|---|
| 2.16 | Substance or mixture corrosive to metals | 1 | Met. Corr. 1 | H290 |
| 3.2 | Skin corrosion/irritation | 1B | Skin Corr. 1B | H314 |
| 3.3 | Serious eye damage/eye irritation | 1 | Eye Dam. 1 | H318 |

### 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

**Signal word** **Danger**

**Pictograms**

GHS05

**Hazard statements**

H290 May be corrosive to metals
H314 Causes severe skin burns and eye damage

**Precautionary statements**

**Precautionary statements - prevention**

P260 Do not breathe dusts or mists
P280 Wear eye protection/face protection

**Precautionary statements - response**

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
P390 Absorb spillage to prevent material damage

**Precautionary statements - disposal**

P501 Dispose of contents/container to industrial combustion plant

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

## 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 | 5 | Ox. Liq. 3 / H272<br>Met. Corr. 1 / H290<br>Acute Tox. 3 / H331<br>Skin Corr. 1A / H314<br>Eye Dam. 1 / H318<br>EUH071 |  | B(a) |
| Lead(II) nitrate | CAS No 10099-74-8 | 0.16 | Acute Tox. 4 / H302<br>Acute Tox. 4 / H332<br>Repr. 1A / H360Df<br>STOT RE 1 / H372 |  | 1(a)<br>A(a)<br>IARC: 2A |

**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
IARC: 2A: IARC group 2A: probably carcinogenic to humans (International Agency for Research on Cancer)

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.

**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.

**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

### 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, dry extinguishing powder, BC-powder, carbon dioxide ($CO_2$)

**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 (NOx)

### 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.

**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

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/m³] | STEL [ppm] | STEL [mg/m³] | Ceiling-C [ppm] | Ceiling-C [mg/m³] | Notation | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AU | lead, inorganic compounds | | WES | | 0.05 | | | | | Pb, df | WES |
| AU | nitric acid | 7697-37-2 | WES | 2 | 5.2 | 4 | 10 | | | | WES |

**Notation**

| | |
|---|---|
| Ceiling-C | Ceiling value is a limit value above which exposure should not occur |
| df | As dust and fumes |
| Pb | Calculated as Pb (lead) |
| 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) |

### 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

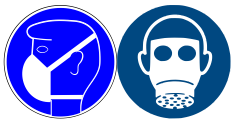
**• breakthrough times of the glove material**

>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.

#### 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 |
| Odour | characteristic |
| Melting point/freezing point | ~0 °C at 1,013 Pa |
| Boiling point or initial boiling point and boiling range | ~100 °C at 1,013 hPa |
| 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 |
| Kinematic viscosity | not determined |
| Solubility(ies) | |
| Water solubility | not determined |
| Partition coefficient | |
| Partition coefficient n-octanol/water (log value): | not relevant (inorganic) |
| Vapour pressure | 23 hPa at 20 °C |
| Density and/or relative density | |
| Density | ~1 $^{g}/_{cm^3}$ at 20 °C |
| Relative vapour density | information on this property is not available |
| Particle characteristics | not relevant (liquid) |
| Other safety parameters | |
| Oxidising properties | none |

### 9.2 Other information

| | |
|---|---|
| Information with regard to physical hazard classes: | |
| Corrosive to metals | category 1: corrosive to metals |
| Other safety characteristics: | There is no additional information. |

## 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 toxicological effects

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 acc. to GHS**

**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 | inhalation: dust/mist | 1.5 $^{mg}/_{l}$/4h |

**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 |

**Skin corrosion/irritation**

Causes severe skin burns and eye damage.

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Respiratory or skin sensitisation**

Shall not be classified as a respiratory or skin sensitiser.

**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

**• Other information**

This information is based upon the present state of our knowledge.

**11.2 Endocrine disrupting properties**

None of the ingredients are listed.

## SECTION 12: Ecological information

### 12.1 Toxicity

Harmful to aquatic life.

**Aquatic toxicity (acute) of components of the mixture**

| Name of sub-stance | 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 |

**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.

### 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**

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

**Relevant provisions relating to waste(Basel Convention)**

**Properties of waste which render it hazardous**

**H8** Corrosives

### 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

| | |
|---|---|
| **UN RTDG** | UN 2031 |
| IMDG-Code | UN 2031 |
| ICAO-TI | UN 2031 |

### 14.2 UN proper shipping name

| | |
|---|---|
| **UN RTDG** | NITRIC ACID |
| IMDG-Code | NITRIC ACID |
| ICAO-TI | Nitric acid |

### 14.3 Transport hazard class(es)

| | |
|---|---|
| **UN RTDG** | 8 |
| IMDG-Code | 8 |
| ICAO-TI | 8 |

### 14.4 Packing group

| | |
|---|---|
| **UN RTDG** | 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

There is no additional information.

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

The cargo is not intended to be carried in bulk.

### 14.8 Information for each of the UN Model Regulations

| **Transport information** | **National regulations** | **Additional information (UN RTDG)** |
|---|---|---|
| **UN number** | | 2031 |
| **Class** | | 8 |
| **Packing group** | | II |
| **Danger label(s)** | | 8 |

| | |
|---|---|
| **Special provisions (SP)** | - UN RTDG |

| | |
|---|---|
| **Excepted quantities (EQ)** | E2<br>UN RTDG |
| **Limited quantities (LQ)** | 1 L<br>UN RTDG |

**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 |
| 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

There is no additional information.

**National regulations(Australia)**

**Australian Inventory of Chemical Substances(AICS)**

All ingredients are listed or exempt from listing.

**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

| Country | Inventory | Status |
|---|---|---|
| AU | AICS | 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 | 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**

AICS Australian Inventory of Chemical Substances
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
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

### Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|---|---|
| Acute Tox. | Acute toxicity |
| ATE | Acute Toxicity Estimate |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |

| Abbr. | Descriptions of used abbreviations |
|---|---|
| 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 |
| 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 |
| MARPOL | International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant") |
| Met. Corr. | Substance or mixture corrosive to metals |
| NLP | No-Longer Polymer |
| Ox. Liq. | Oxidising liquid |
| PBT | Persistent, Bioaccumulative and Toxic |
| ppm | Parts per million |
| Repr. | Reproductive toxicity |
| 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 |
| UN RTDG | UN Recommendations on the Transport of Dangerous Good |
| vPvB | Very Persistent and very Bioaccumulative |
| WES | Safe Work Australia: Workplace exposure standards for airborne contaminants |

### Key literature references and sources for data

Safe Work Australia’s Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. 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. |
| H318 | Causes serious eye damage. |
| H331 | Toxic if inhaled. |
| H332 | Harmful if inhaled. |
| H360Df | May damage the unborn child. Suspected of damaging fertility. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |

### Disclaimer

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