

# Safety data sheet Safety Data Sheet

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



## Multi-Element ICP-Standard Solution CR-46 ROTI®Star 6 elements in 5 % HNO<sub>3</sub>

article number: **25AK**  
Version: **4.0 en**  
Replaces version of: 2024-10-10  
Version: (3)

date of compilation: 2023-11-20  
Revision: 2025-02-19

## 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-46 ROTI®Star 6 elements in 5 % HNO<sub>3</sub>**

Article number 25AK

### 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 private purposes (household). Food, drink and animal feedingstuffs.

### 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
National Poisons Information Service City Hospital	Dudley Rd	B187QH Birmingham	844 892 0111	

## 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

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### Supplemental hazard information

Code	Supplemental hazard information
EUH071	corrosive to the respiratory tract
EUH208	contains nickel dinitrate. May produce an allergic reaction

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

P280

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

### Supplemental hazard information

EUH071

Corrosive to the respiratory tract.

EUH208

Contains nickel dinitrate. May produce an allergic reaction.

#### Hazardous ingredients for labelling:

Nitric acid ...% [C ≤ 70 %]

## 2.3 Other hazards

### Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.

### Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

not relevant (mixture)

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### 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	Ox. Liq. 3 / H272 Met. Corr. 1 / H290 Acute Tox. 3 / H331 Skin Corr. 1A / H314 Eye Dam. 1 / H318		B GHS-HC IOELV
nickel dinitrate	CAS No 13138-45-9  EC No 236-068-5  Index No 028-012-00-1	< 0,1	Ox. Sol. 2 / H272 Acute Tox. 4 / H302 Acute Tox. 4 / H332 Skin Irrit. 2 / H315 Eye Dam. 1 / H318 Resp. Sens. 1 / H334 Skin Sens. 1 / H317 Muta. 2 / H341 Carc. 1A / H350i Repr. 1B / H360D STOT RE 1 / H372 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410		GHS-HC IOELV

#### Notes

B: Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid ... %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)

IOELV: Substance with a community indicative occupational exposure limit value

Name of substance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
Nitric acid ...% [C ≤ 70 %]	CAS No 7697-37-2  EC No 231-714-2	Ox. Liq. 3; H272: C ≥ 65 % Skin Corr. 1A; H314: C ≥ 20 % Skin Corr. 1B; H314: 5 % ≤ C < 20 %	-	2,65 mg <sub>i</sub> /4h	inhalation: vapour
nickel dinitrate	CAS No 13138-45-9  EC No 236-068-5	Skin Irrit. 2; H315: C ≥ 20 % Skin Sens. 1; H317: C ≥ 0,01 % STOT RE 1; H372: C ≥ 1 % STOT RE 2; H373: 0,1 % ≤ C < 1 %	M-factor (acute) = 1 M-factor (chronic) = 1	1.620 mg <sub>/kg</sub> 1,5 mg <sub>i</sub> /4h	oral inhalation: dust/mist

#### Remarks

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.

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### 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, 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 (CO<sub>2</sub>)

#### 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<sub>x</sub>)

### 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. Retain contaminated washing water and dispose of it. The product is an acid. Before discharge into sewage plants the product normally needs to be

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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

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

Store in a well-ventilated place. Keep container tightly closed. Keep only in original container. May cause decomposition by long-term light influence.

#### Incompatible substances or mixtures

Observe hints for combined storage. Incompatible materials: see section 10.

#### Protect against external exposure, such as

UV-radiation/sunlight, contact with air/oxygen

#### 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 <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
EU	nickel compounds	13138-45-9	IOELV		0,1					Ni, i	2022/431/EU
EU	nitric acid	7697-37-2	IOELV			1	2,6				2006/15/EC
GB	nickel, soluble compounds	13138-45-9	WEL		0,1					Ni, exNi(C)	EH40/2005

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Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [ppm]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
										O)4, H	
GB	nitric acid	7697-37-2	WEL			1	2,6				EH40/2005

### Notation

Ceiling-C	Ceiling value is a limit value above which exposure should not occur
exNi(CO)4	Except nickel carbonyl
H	Absorbed through the skin
i	Inhalable fraction
Ni	Calculated as Ni (nickel)
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

FKM (fluoro rubber), Butyl caoutchouc (butyl rubber)

#### • material thickness

0,5 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.

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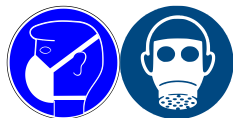
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### Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: NO-P3 (against nitrous gases and particles, colour code: Blue/White).

### 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	stinging
Melting point/freezing point	not determined
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 (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	23 hPa at 20 °C
<u>Density and/or relative density</u>	
Density	~1 g/cm <sup>3</sup> at 20 °C
Relative vapour density	Information on this property is not available.
Particle characteristics	not relevant (liquid)

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### 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:

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:** Acetone, Aldehydes, Alkali metals, Alcohols, Formic acid, Amines, Ammonia (NH<sub>3</sub>), Aniline, Alkaline earth metal, Acetic anhydride, Hydrazine, Metal powder, Nitriles, Strong alkali, Hydrogen peroxide,  
=> Explosive properties

### 10.4 Conditions to avoid

UV-radiation/sunlight. Keep away from heat.

### 10.5 Incompatible materials

different metals

### 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			
Name of substance	CAS No	Exposure route	ATE
Nitric acid ...% [C ≤ 70 %]	7697-37-2	inhalation: vapour	2,65 mg/l/4h
nickel dinitrate	13138-45-9	oral	1.620 mg/kg
nickel dinitrate	13138-45-9	inhalation: dust/mist	1,5 mg/l/4h



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### Acute toxicity of components

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
nickel dinitrate	13138-45-9	oral	LD50	1.620 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

Contains nickel dinitrate. May produce an allergic 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.

### Endocrine disruptor for human health

Shall not be classified as an endocrine disruptor for human health.

### 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, pulmonary oedema

#### • If on skin

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

#### • Other information

none

## 11.2 Information on other hazards

There is no additional information.

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## SECTION 12: Ecological information

### 12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

### 12.2 Persistence and 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

Does not contain a PBT-/vPvB-substance at a concentration of  $\geq 0,1\%$ .

### 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of  $\geq 0,1\%$ .

### 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. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

### 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. Non-contaminated packages may be recycled.

## SECTION 14: Transport information

### 14.1 UN number or ID number

ADRRID

UN 3264


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IMDG-Code	UN 3264
ICAO-TI	UN 3264
<b>14.2 UN proper shipping name</b>	
ADRRID	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
IMDG-Code	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
ICAO-TI	Corrosive liquid, acidic, inorganic, n.o.s.
Technical name (hazardous ingredients)	Nitric acid ...% [C ≤ 70 %], Zinc nitrate
<b>14.3 Transport hazard class(es)</b>	
ADRRID	8
IMDG-Code	8
ICAO-TI	8
<b>14.4 Packing group</b>	
ADRRID	II
IMDG-Code	II
ICAO-TI	II
<b>14.5 Environmental hazards</b>	non-environmentally hazardous acc. to the dangerous goods regulations
<b>14.6 Special precautions for user</b>	
Provisions for dangerous goods (ADR) should be complied within the premises.	
<b>14.7 Maritime transport in bulk according to IMO instruments</b>	
The cargo is not intended to be carried in bulk.	
<b>14.8 Information for each of the UN Model Regulations</b>	
<b>Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)Additional information</b>	
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Particulars in the transport document	UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid ...% [C ≤ 70 %], Zinc nitrate), 8, II, (E)
Classification code	C1
Danger label(s)	8
	
Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	E

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Hazard identification No 80

Emergency Action Code 2X

### Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) Additional information

Classification code C1

Danger label(s) 8



Special provisions (SP) 274

Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

Transport category (TC) 2

Hazard identification No 80

### International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

Particulars in the shipper's declaration UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid ...% [C ≤ 70 %], Zinc nitrate), 8, II

Marine pollutant -

Danger label(s) 8



Special provisions (SP) 274

Excepted quantities (EQ) E2

Limited quantities (LQ) 1 L

EmS F-A, S-B

Stowage category B

Segregation group 1 - Acids

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

Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s.

Particulars in the shipper's declaration UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (contains: Nitric acid ...% [C ≤ 70 %], Zinc nitrate), 8, II

Danger label(s) 8



Special provisions (SP) A3

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Exempted 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)

##### 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 %
VOC content (Water content was discounted)	0 g/l

##### Industrial Emissions Directive (IED)

VOC content	0 %
VOC content (Water content was discounted)	0 g/l

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

none of the ingredients are listed

##### Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
nickel dinitrate	nickel compounds		b)	
nickel dinitrate	nickel compounds		c)	
nickel dinitrate	Substances which contribute to eutrophication (in particular, nitrates and phosphates)		a)	
nickel dinitrate	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)	
nickel dinitrate	Metals and their compounds		a)	

##### Legend

- a) Indicative list of the main pollutants  
b) List of priority substances in the field of water policy

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### Legend

c) Environmental Quality Standards for Priority Substances and certain other pollutants

### Regulation on the marketing and use of explosives precursors

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 li- censing under Article 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 on persistent organic pollutants (POP)

none of the ingredients are listed

### National regulations(GB)

### Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)			
Name of substance	Name acc. to inventory	CAS No	No
Multi-Element	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3
nickel dinitrate	Nickel compounds		27
nickel dinitrate	carcinogenic		28
nickel dinitrate	toxic for reproduction		30

### 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.

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### National inventories

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	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 (ACTIVE)

#### 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)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
15.1	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS): none of the ingredients are listed		yes
15.1	Regulation concerning the export and import of hazardous chemicals (PIC): chemicals subject to the international prior informed consent (PIC) procedure (the 'PIC procedure').		yes
15.1		National inventories: change in the listing (table)	yes

# Safety data sheet Safety data sheet

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



## Multi-Element ICP-Standard Solution CR-46 ROTI®Star 6 elements in 5 % HNO<sub>3</sub>

article number: 25AK

### 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
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
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
Carc.	Carcinogenicity
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)
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)
ED	Endocrine disruptor
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
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
Met. Corr.	Substance or mixture corrosive to metals



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Abbr.	Descriptions of used abbreviations
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
Ox. Liq.	Oxidising liquid
Ox. Sol.	Oxidising solid
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	Reproductive toxicity
Resp. Sens.	Respiratory sensitisation
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
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
WEL	Workplace exposure limit

### Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). 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.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.

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Code	Text
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360D	May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

### Disclaimer

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