

# Safety data sheet

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



## Multi-Element ICP - Standard Solution XVI ROTI®Star 21 elements in 2 % HNO<sub>3</sub> - 100 mg/l

article number: **2645**  
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Version: (2)

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

### 1.1 Product identifier

Identification of the substance	<b>Multi-Element ICP - Standard Solution XVI ROTI®Star 21 elements in 2 % HNO<sub>3</sub> - 100 mg/l</b>
Article number	2645
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 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  
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**Website:** [www.carlroth.de](http://www.carlroth.de)

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

**e-mail (competent person):** [sicherheit@carlroth.de](mailto: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	2	Skin Irrit. 2	H315
3.3	Serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.4S	Skin sensitisation	1	Skin Sens. 1	H317
3.6	Carcinogenicity	1B	Carc. 1B	H350i

For full text of abbreviations: see SECTION 16

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### 2.2 Label elements

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

#### Signal word

**Danger**

#### Pictograms

GHS05, GHS07,  
GHS08



#### Hazard statements

H290	May be corrosive to metals
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H350i	May cause cancer by inhalation

#### Precautionary statements

##### Precautionary statements - prevention

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

For professional users only

**Hazardous ingredients for labelling:** Nickel dinitrate, Cobalt dinitrate

#### Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H317	May cause an allergic skin reaction.
H350i	May cause cancer by inhalation.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
contains:	Nickel dinitrate, Cobalt dinitrate

### 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

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### Description of the mixture

Name of sub-stance	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  REACH Reg. No 01-2119487297-23-xxxx	2	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
cobalt dinitrate	CAS No 10141-05-6  EC No 233-402-1  Index No 027-009-00-2	< 0,1	Resp. Sens. 1 / H334 Skin Sens. 1 / H317 Muta. 2 / H341 Carc. 1B / H350i Repr. 1B / H360F Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410		1(a) GHS-HC
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
Lead(II) nitrate	CAS No 10099-74-8  EC No 233-245-9  Index No 082-001-00-6	< 0,1	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

### 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: IARC group 2A: probably carcinogenic to humans (International Agency for Research on Cancer)  
2A:  
IOELV: Substance with a community indicative occupational exposure limit value

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

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Name of sub- stance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
cobalt dinitrate	CAS No 10141-05-6  EC No 233-402-1  Index No 027-009-00-2	Carc. 1B; H350i: C ≥ 0,01 %	M-factor (acute) = 10 M-factor (chronic) = 10	-	
nickel dinitrate	CAS No 13138-45-9  EC No 236-068-5  Index No 028-012-00-1	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/kg 1,5 mg/l/4h	oral inhalation: dust/ mist
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

For full text of abbreviations: see SECTION 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

#### Following inhalation

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

#### Following skin contact

Rinse skin with water/shower. After contact with skin, wash immediately with plenty of water. In case of skin reactions, consult a physician. In case of skin irritation, consult a physician.

#### Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

#### Following ingestion

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

### 4.2 Most important symptoms and effects, both acute and delayed

Irritation, Allergic reactions

### 4.3 Indication of any immediate medical attention and special treatment needed

none

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## 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.

## 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.

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### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Use extractor hood (laboratory). Avoid exposure. Avoid: Aerosol or mist formation.

#### 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)

Cou ntr y	Name of agent	CAS No	Identi- fier	TW A [pp m]	TWA [mg/ m <sup>3</sup> ]	STE L [pp m]	STEL [mg/ m <sup>3</sup> ]	Ceil ing- C [pp m]	Ceil- ing-C [mg/ m <sup>3</sup> ]	Nota- tion	Source
EU	lead compounds		IOELV		0,15						2022/ 431/EU
EU	nickel compounds	13138- 45-9	IOELV		0,05					i, cmr_N icom 2	2022/ 431/EU
EU	nickel compounds	13138- 45-9	IOELV		0,01					r, cmr_N icom 2	2022/ 431/EU
EU	nitric acid	7697-37- 2	IOELV			1	2,6				2006/15/ EC
MT	lead compounds		OELV		0,15						CAP. 424
MT	nitric acid	7697-37- 2	OELV			1	2,6				CAP. 424

#### Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur

cmr\_Nicom The limit value shall apply from 18 January 2025

cmr\_Nicom The limit value shall apply from 18 January 2025. Until then a limit value of 0,1 mg/m<sup>3</sup> shall apply.

2

i Inhalable fraction

r Respirable 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)

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### 8.2 Exposure controls

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggle with side protection.

##### Skin protection



##### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. 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).

##### Environmental exposure controls

Keep away from drains, surface and ground water.

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### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless - clear
Odour	stinging
Melting point/freezing point	0 °C
Boiling point or initial boiling point and boiling range	100 °C
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)
<u>Other safety parameters</u>	
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:	

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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:** Alkali metals, Ammonia (NH<sub>3</sub>), Alkaline earth metal, Strong alkali

#### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

#### 10.5 Incompatible materials

different metals

#### Release of flammable materials with

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
nickel dinitrate	13138-45-9	oral	1.620 mg/kg
nickel dinitrate	13138-45-9	inhalation: dust/mist	1,5 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

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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
nickel dinitrate	13138-45-9	oral	LD50	1.620 mg/kg	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 skin irritation.

### Serious eye damage/eye irritation

Causes serious eye irritation.

### Respiratory or skin sensitisation

May cause an allergic skin reaction.

### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

### Carcinogenicity

May cause cancer by inhalation.

### 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

diarrhoea, vomiting, nausea, gastrointestinal complaints

#### • If in eyes

Causes serious eye irritation

#### • If inhaled

Data are not available.

#### • If on skin

causes skin irritation, May produce an allergic reaction, pruritis, localised redness

#### • Other information

none

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### 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

### 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

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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 4** irritant - skin irritation and eye damage

### 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 3264
IMDG-Code	UN 3264
ICAO-TI	UN 3264

### 14.2 UN proper shipping name

ADR	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 %]

### 14.3 Transport hazard class(es)

ADR	8
IMDG-Code	8
ICAO-TI	8

### 14.4 Packing group

ADR	III
IMDG-Code	III
ICAO-TI	III

### 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

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

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 %]), 8, III, (E)
Classification code	C1
Danger label(s)	8
	
Special provisions (SP)	274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	E
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 %]), 8, III
Marine pollutant	-
Danger label(s)	8
	
Special provisions (SP)	223, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-A, S-B
Stowage category	A
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 %]), 8, III
Danger label(s)	8



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Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	1 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
cobalt dinitrate	carcinogenic		R28-30	28
cobalt dinitrate	toxic for reproduction		R28-30	30
nickel dinitrate	carcinogenic		R28-30	28
nickel dinitrate	toxic for reproduction		R28-30	30
nickel dinitrate	nickel compounds		R27	27
Nitric acid ...% [C ≤ 70 %]	substances in tattoo inks and permanent make-up		R75	75

##### Legend

- R27
1. Shall not be used:
    - (a) in any post assemblies which are inserted into pierced ears and other pierced parts of the human body unless the rate of nickel release from such post assemblies is less than 0,2 µg/cm<sup>2</sup>/week (migration limit);
    - (b) in articles intended to come into direct and prolonged contact with the skin such as:
      - earrings,
      - necklaces, bracelets and chains, anklets, finger rings,
      - wrist-watch cases, watch straps and tighteners,
      - rivet buttons, tighteners, rivets, zippers and metal marks, when these are used in garments,if the rate of nickel release from the parts of these articles coming into direct and prolonged contact with the skin is greater than 0,5 µg/cm<sup>2</sup>/week.
    - (c) in articles referred to in point (b) where these have a non-nickel coating unless such coating is sufficient to ensure that the rate of nickel release from those parts of such articles coming into direct and prolonged contact with the skin will not exceed 0,5 µg/cm<sup>2</sup>/week for a period of at least two years of normal use of the article.
  2. Articles which are the subject of paragraph 1 shall not be placed on the market unless they conform to the requirements set out in that paragraph.
  3. The standards adopted by the European Committee for Standardisation (CEN) shall be used as the test methods for demonstrating the conformity of articles to paragraphs 1 and 2.

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- 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:  
'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.;

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### 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/cm<sup>2</sup> 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.

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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)

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### 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.

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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
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### Industrial Emissions Directive (IED)

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

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

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
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)	

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List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
cobalt dinitrate	Substances which contribute to eutrophication (in particular, nitrates and phosphates)		a)	
cobalt 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)	
cobalt dinitrate	Metals and their compounds		a)	
nickel dinitrate	nickel compounds		b)	
nickel dinitrate	nickel compounds	7440-02-0	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
- 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 pur- pose of licens- ing un- der Art- icle 5(3)
Nitric acid ...% [C ≤ 70 %]	7697-37-2	2	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

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### 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 / subcategory	Use limitation
Multi-Element	arsenic compounds		100	p(2)	sr
Multi-Element	cadmium compounds		100	i(1) i(2)	sr sr
Multi-Element	lead compounds		100	i(2)	sr
Lead(II) nitrate	lead compounds		0,016	i(2)	sr

### Legend

i(1) Sub-category: i(1) - industrial chemical for professional use  
i(2) Sub-category: i(2) - industrial chemical for public use  
p(2) Sub-category: p(2) - other pesticide including biocides  
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

Country	Inventory	Status
AU	AIIC	not all ingredients are listed
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
CN	IECSC	not all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	not all ingredients are listed
KR	KECI	not all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	not all ingredients are listed
PH	PICCS	not all ingredients are listed

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Country	Inventory	Status
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	not 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
KECI	Korea Existing Chemicals Inventory
NDSL	Non-domestic Substances List (NDSL)
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
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	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
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)

# Safety data sheet

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



## Multi-Element ICP - Standard Solution XVI ROTI®Star 21 elements in 2 % HNO<sub>3</sub> - 100 mg/l

article number: 2645

Abbr.	Descriptions of used abbreviations
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
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
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)
EINECS	European Inventory of Existing Commercial Chemical Substances
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
Met. Corr.	Substance or mixture corrosive to metals

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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

### 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.

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article number: **2645**

Code	Text
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360D	May damage the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H360F	May damage fertility.
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.