

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Multi-Element ICP - Standard Solution ROTI®Star 22 elements in 5 % HNO₃ - 100 mg/l

article number: **2648**
Version: **GHS 3.1 en**
Replaces version of: 2024-04-02
Version: (GHS 3)

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Revision: 2024-04-02

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

Relevant identified uses:

Laboratory chemical
Laboratory and analytical use

Uses advised against:

Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). 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
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 Westmead, NSW	131126	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

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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	1B	Skin Corr. 1B	H314
3.3	Serious eye damage/eye irritation	1	Eye Dam. 1	H318
3.4S	Skin sensitisation	1	Skin Sens. 1	H317
3.6	Carcinogenicity	1B	Carc. 1B	H350

Supplemental hazard information

Code	Supplemental hazard information
AUH071	corrosive to the respiratory tract

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

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

2.2 Label elements

Labelling

Signal word

Danger

Pictograms

GHS05, GHS07,
GHS08



Hazard statements

H290 May be corrosive to metals
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction
H350 May cause cancer

Precautionary statements

Precautionary statements - prevention

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

Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of soap and water
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P363 Wash contaminated clothing before reuse
P390 Absorb spillage to prevent material damage

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Precautionary statements - disposal

P501 Dispose of contents/container to industrial combustion plant

For professional users only

Supplemental hazard information

AUH071 Corrosive to the respiratory tract.

Hazardous ingredients for labelling:

Nickel dinitrate, Cobalt dinitrate, Nitric acid ...% [C ≤ 70 %], Cadmium nitrate

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)

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	5	Ox. Liq. 3 / H272 Met. Corr. 1 / H290 Acute Tox. 3 / H331 Skin Corr. 1A / H314 Eye Dam. 1 / H318		
cobalt dinitrate	CAS No 10141-05-6 EC No 233-402-1	< 0.1	Resp. Sens. 1 / H334 Skin Sens. 1 / H317 Muta. 2 / H341 Carc. 1B / H350i Repr. 1B / H360F		
nickel dinitrate	CAS No 13138-45-9 EC No 236-068-5	< 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		
Cadmium nitrate	CAS No 10325-94-7 EC No 233-710-6	< 0.1	Acute Tox. 3 / H301 Acute Tox. 4 / H312 Acute Tox. 4 / H332 Muta. 1B / H340 Carc. 1B / H350 STOT RE 1 / H372		

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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. Self-protection of the first aider.

Following inhalation

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

Following skin contact

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

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion

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

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

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

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products

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

5.3 Advice for firefighters

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

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

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

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

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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

Advice on general occupational hygiene

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

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

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7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Notation	Source
AU	nickel dinitrate	13138-45-9	WES		0.1						WES
AU	nitric acid	7697-37-2	WES	2	5.2	4	10				WES

Notation

Ceiling-C
STEL

Ceiling value is a limit value above which exposure should not occur
Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA

Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Cadmium nitrate	10325-94-7	DNEL	4 µg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects

Relevant PNECs of components

Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
Cadmium nitrate	10325-94-7	PNEC	0.19 µg/l	aquatic organisms	freshwater	short-term (single instance)
Cadmium nitrate	10325-94-7	PNEC	1.14 µg/l	aquatic organisms	marine water	short-term (single instance)
Cadmium nitrate	10325-94-7	PNEC	20 µg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Cadmium nitrate	10325-94-7	PNEC	1.8 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Cadmium nitrate	10325-94-7	PNEC	0.64 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Cadmium nitrate	10325-94-7	PNEC	0.9 mg/kg	terrestrial organisms	soil	short-term (single instance)

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8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection. Wear face protection.

Skin protection



• hand protection

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

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

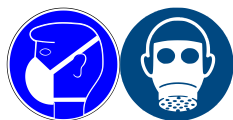
• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

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

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: NO-P3 (against nitrous gases and particles, colour code: Blue/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
Odour	stinging
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	>84 °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 (in aqueous solution: 52.6 g/l, 20 °C)
Kinematic viscosity	not determined
<u>Solubility(ies)</u>	
Water solubility	miscible in any proportion
<u>Partition coefficient</u>	
Partition coefficient n-octanol/water (log value):	not relevant (inorganic)
Vapour pressure	23 hPa at 20 °C
<u>Density and/or relative density</u>	
Density	~1 g/cm ³ at 20 °C
Relative vapour density	Information on this property is not available.
Particle characteristics	not relevant (liquid)
<u>Other safety parameters</u>	
Oxidising properties	none

9.2 Other information

Information with regard to physical hazard classes:

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: Ammonia (NH₃), Strong alkali

10.4 Conditions to avoid

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

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
Cadmium nitrate	10325-94-7	oral	147 mg/kg
Cadmium nitrate	10325-94-7	dermal	1,100 mg/kg
Cadmium nitrate	10325-94-7	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
Cadmium nitrate	10325-94-7	oral	LD50	147 mg/kg	rat

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

May cause cancer.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

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

• If in eyes

causes burns, Causes serious eye damage, risk of blindness

• If inhaled

corrosive to the respiratory tract, cough, Dyspnoea

• If on skin

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

• Other information

none

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11.2 Endocrine disrupting properties

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

SECTION 12: Ecological information

12.1 Toxicity

Harmful to aquatic life.

Aquatic toxicity (acute) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Cadmium nitrate	10325-94-7	LC50	58.16 $\mu\text{g}/\text{l}$	aquatic invertebrates	48 h
Cadmium nitrate	10325-94-7	EC50	1,900 $\mu\text{g}/\text{l}$	aquatic invertebrates	24 h
Cadmium nitrate	10325-94-7	ErC50	70 $\mu\text{g}/\text{l}$	algae	72 h

Aquatic toxicity (chronic) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Cadmium nitrate	10325-94-7	LC50	1,500 $\mu\text{g}/\text{l}$	fish	4 d
Cadmium nitrate	10325-94-7	EC50	8.1 $\mu\text{g}/\text{l}$	fish	100 d

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.

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Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

Relevant provisions relating to waste(Basel Convention)

Properties of waste which render it hazardous

H8 Corrosives

13.3 Remarks

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

SECTION 14: Transport information

14.1 UN number

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

14.2 UN proper shipping name

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

14.3 Transport hazard class(es)

UN RTDG	8
IMDG-Code	8
ICAO-TI	8

14.4 Packing group

UN RTDG	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to 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 information National regulations Additional information (UN RTDG)


UN number	2031
Class	8
Packing group	II
Danger label(s)	8
	
Special provisions (SP)	- UN RTDG
Excepted quantities (EQ)	E2 UN RTDG
Limited quantities (LQ)	1 L UN RTDG
Emergency Action Code	2R

International Maritime Dangerous Goods Code (IMDG) - Additional information

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

Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-A, S-B
Stowage category	D
Segregation group	1 - Acids

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

Proper shipping name	Nitric acid
Particulars in the shipper's declaration	UN2031, Nitric acid, 8, II
Danger label(s)	8
	

Excepted quantities (EQ)	E2
Limited quantities (LQ)	0,5 L

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SECTION 15: Regulatory information

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

There is no additional information.

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

All ingredients are listed or exempt from listing.

Other information

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

National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
CN	IECSC	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
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	not all ingredients are listed
VN	NCI	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
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical 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

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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
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.1		Supplemental hazard information: change in the listing (table)	yes
2.2		Pictograms: change in the listing (table)	yes
2.2		Hazard statements: change in the listing (table)	yes
2.2		Precautionary statements - response: change in the listing (table)	yes
2.2		Supplemental hazard information	yes
2.2		Supplemental hazard information: change in the listing (table)	yes
2.2	Hazardous ingredients for labelling: Cadmium nitrate, Nitric acid ...% [C ≤ 70 %]	Hazardous ingredients for labelling: Nickel dinitrate, Cobalt dinitrate, Nitric acid ...% [C ≤ 70 %], Cadmium nitrate	yes
2.3	Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.	Results of PBT and vPvB assessment: Does not contain a PBT-/vPvB-substance at a concentration of ≥ 0,1%.	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes
14.8		Emergency Action Code: 2R	yes
15.1		National inventories: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
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)
DNEL	Derived No-Effect Level

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Abbr.	Descriptions of used abbreviations
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
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
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
Met. Corr.	Substance or mixture corrosive to metals
Muta.	Germ cell mutagenicity
NLP	No-Longer Polymer
Ox. Liq.	Oxidising liquid
Ox. Sol.	Oxidising solid
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
Repr.	Reproductive toxicity
Resp. Sens.	Respiratory sensitisation
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit

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Abbr.	Descriptions of used abbreviations
STOT RE	Specific target organ toxicity - repeated exposure
TWA	Time-weighted average
UN RTDG	UN Recommendations on the Transport of Dangerous Good
vPvB	Very Persistent and very Bioaccumulative
WES	Safe Work Australia: Workplace exposure standards for airborne contaminants

Key literature references and sources for data

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

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

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

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

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

Code	Text
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H350i	May cause cancer by inhalation.
H360D	May damage the unborn child.
H360F	May damage fertility.
H372	Causes damage to organs through prolonged or repeated exposure.

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Disclaimer

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