

Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

REF: 985096	NANOCOLOR Zinc 4	Page: 1/15
Printing date: 12.01.2023	Date of issue: 16.08.2022	Version: 2.2.3.2

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

1.1 Product identifier

REF 985096
 Product name NANOCOLOR Zinc 4

REACH Registration number(s): see SECTION 3.1/3.2 or
 A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

1 x 5 mL Zinc 4 (R2) UFI: KRIT-G35D-J20Y-71SR
 1 x 3 g Zinc 4 (R3) UFI: TYAU-43ME-F20G-8JWX
 20 x 40 mg Zinc 4, lyophilized (R0) UFI: 1SAU-437M-U20G-XVRT

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

Relevant identified uses
 Product for analytical use.
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0
 The exposure scenario is integrated into sections 1-16.

Uses advised against
 not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:
 MACHEREY-NAGEL GmbH & Co. KG
 Valenciener Str. 11, 52355 Düren, Germany
 Phone: +49 2421 969 0

E-mail: sds@mn-net.com (msds@mn-net.com)

1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.
 DE: Gemeinsames Giftinformationszentrum (GGIZ)
 99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>

You find our current versions of SDS in Internet: <<http://www.mn-net.com/SDS>>

Lieferant / Supplier:
 Carl Roth GmbH + Co KG
 Scheußerlenstr. 3-5
 76185 Karlsruhe, Germany
 +49 721 5606 0
 sicherheit@carlroth.de

SECTION 2: Hazard identification

2.0 Classification of the complete product according to Regulation (EC) 1272/2008



Signal word	DANGER
Hazard identification	Hazard classes/categories
H272	Ox. Liq. 2
H300	Acute Tox. 2 oral
H310	Acute Tox. 2 derm.
H315	Skin Irrit. 2
H318	Eye Dam. 1
H330	Acute Tox. 2 inh.
H335	STOT SE 3
H360FD	Repr. 1B
H410	Aquatic Chronic 1
EUH032	not defined



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2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

40 mg Zinc 4, lyophilized (R0)



GHS06 GHS08 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH032	not defined
H300	Acute Tox. 2 oral
H310	Acute Tox. 2 derm.
H330	Acute Tox. 2 inh.
H360FD	Repr. 1B
H410	Aquatic Chronic 1

3 g Zinc 4 (R3)



GHS03 GHS05 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H272	Ox. Liq. 2
H315	Skin Irrit. 2
H318	Eye Dam. 1
H335	STOT SE 3

5 mL Zinc 4 (R2)



GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H315	Skin Irrit. 2

List of H phrases: see section 16.2

2.2 Label elements according regulation (EC) 1272/2008

According **CLP directive** inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2). Inner packages up to 10 mL need max. 2 symbols (Annex I - 1.5.2.4.1 / 2). Harmful chemicals/mixtures with signal word: **WARNING** must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2). Oxidizing mixtures with signal word: **DANGER** and **H272** must not be labelled with H and P phrases **until 125 mL**.

40 mg Zinc 4, lyophilized (R0)



GHS06 GHS07 GHS08 GHS09



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Signal word: DANGER
 H300, H310, H330, H360FD
 Fatal if swallowed.Fatal in contact with skin.Fatal if inhaled.May damage fertility. May damage the unborn child.
 P201, P260sh, P280sh, P301+310, P302+352, P405
 Obtain special instructions before use.Do not breathe dust/vapours.Wear protective gloves/eye protection.IF
 SWALLOWED: Immediately call a POISON CENTER/ doctor.IF ON SKIN: Wash with plenty of water.Store locked up.

3 g Zinc 4 (R3)



GHS03



GHS05

Signal word: DANGER
 H318
 Causes serious eye damage.
 P280sh, P305+351+338
 Wear protective gloves/eye protection.IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

5 mL Zinc 4 (R2)



GHS06



GHS07

Signal word: DANGER

Label elements of the complete product



GHS03



GHS05



GHS06



GHS08



GHS09

Signal word: DANGER
 H300, H310, H318, H330, H360FD
 Fatal if swallowed.Fatal in contact with skin.Causes serious eye damage.Fatal if inhaled.May damage fertility. May damage the unborn child.
 P201, P260sh, P280sh, P301+310, P302+352, P305+351+338, P405
 Obtain special instructions before use.Do not breathe dust/vapours.Wear protective gloves/eye protection.IF
 SWALLOWED: Immediately call a POISON CENTER/ doctor.IF ON SKIN: Wash with plenty of water.IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.Store locked up.

2.3 Other hazards

Possible hazards from physicochemical properties

Generally in the case of pH values are less than 2 or higher than 11.5 then it is corrosive. In the case of pH values are less than 5 or higher than 9 then it is irritant.

Information pertaining to particular risks to human and possible symptoms

Causes varying degrees of acid burns on the skin, to the eyes and to the mucous membranes and wounds which do not heal quickly depending on the concentration, temperature and the exposure time. Vapours especially which steam from hot liquids and mist can have a severe irritant effect upon the eyes and the respiratory organs.

Cause severe after oral intake, inhalation of vapours, skin contact, impairments of health or can lead to death even when only ingested in small quantities. Cause after inhalation of vapours/dust, impairments of health when ingested in small quantities. May damage fertility. May damage the unborn child.

Information pertaining to particular risks to the environment

Avoid contact of substance/mixture to environment.

PBT: not applicable

vPvB: not applicable



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Possible endocrine disrupting effects
no data available

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

40 mg Zinc 4, lyophilized (R0)

Substance name: *potassium cyanide*
CAS No.: 151-50-8

Substance rating: H300, Acute Tox. 1 oral, H310, Acute Tox. 1 derm., H330, Acute Tox. 1 inh., H410, Aquatic Chronic 1, EUH032, not defined
Formula: KCN
Pseudonym (de): Cyankali
REACH Reg. No.: 01-2119486407-29-xxxx
EC No.: 205-792-3
Concentration: 7 - <15 %
The classification refers to the weight percentage of the metal (according to CLP regulation 2008/1272/EG Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): H300, Acute Tox. 2 oral, H310, Acute Tox. 2 derm., H330, Acute Tox. 2 inh., H410, Aquatic Chronic 1, EUH032, not defined

Indice No.: 006-007-00-5
Correlation factor: x 0.40 (= %CN -)

Substance name: *sodium tetraborate*
CAS No.: 12267-73-1

Substance rating: H319, Eye Irrit. 2, H360FD, Repr. 1B
Formula: Na₂B₄O₇
Pseudonym (de): Borax, Dinatriumtetraborat
REACH Reg. No.: 01-2119490790-32-xxxx
SVHC listed: listed (18/06/2010) Cand. Lst. REACH Art59(10)
EC No.: 215-540-4
Concentration: 30 - <60 %
acc. CLP (GHS): H319, Eye Irrit. 2, H360FD, Repr. 1B

Indice No.: 005-011-00-4

Substance name: *Zincon*
CAS No.: 62625-22-3

Substance rating: H315, Skin Irrit. 2, H319, Eye Irrit. 2
Formula: C₂₀H₁₅N₄NaO₆S•H₂O
Pseudonym (de): 2-[[a-(2-Hydroxy-5-sulfophenylazo)-benzyliden]-hydrazino]benzoesäure, Na-Salz
EC No.: 263-651-1
Concentration: 0,1 - <1 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

3 g Zinc 4 (R3)

Substance name: *hydrogen peroxide urea*
CAS No.: 124-43-6

Substance rating: H272, Ox. Sol. 2, H315, Skin Irrit. 2, H318, Eye Dam. 1, H335, STOT SE 3
Formula: CH₄N₂O•H₂O₂
Pseudonym (de): Percarbamid, Carbamidperoxid
EC No.: 204-701-4
Concentration: 20 - <40 %
acc. CLP (GHS): H272, Ox. Liq. 2, H315, Skin Irrit. 2, H318, Eye Dam. 1, H335, STOT SE 3

5 mL Zinc 4 (R2)



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Substance name:	<i>chloral hydrate</i>		
CAS No.:	302-17-0		
Substance rating:	H301, Acute Tox. 3 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2		
Formula:	C ₂ H ₃ Cl ₃ O ₂ •H ₂ O		
Pseudonym (de):	Trichloroacetaldehydhydrat		
REACH Reg. No.:	-		
EC No.:	206-117-5	Indice No.:	605-014-00-6
Concentration:	30 - <55 %		
acc. CLP (GHS):	H301, Acute Tox. 3 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2		

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%. List of H and P phrases: see section 16.2.

SECTION 4: First aid measures

4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor. Take to a doctor, in a raised position if there are breathing difficulties.

4.1.1 After SKIN Contact

Remove contaminated clothing immediately. Rinse the affected skin or mucous membrane thoroughly for min. 15 minutes under running water. (If possible) use soap. Avoid neutralisation. Then apply a loose bandage.

4.1.2 After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open for min. 10 minutes with eye washing bottle, eye douche or running water (protect intact eye). Before (if possible) apply eye drops Proxymetacaine 0.5%, if the opening the eyelid convulsion is painful. Further treatment to be carried out by an eye specialist.

4.1.3 After INHALATION of vapours

After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. If vomiting and if insensible place patient in recovery position and keep airways free. Administer a Dexamethasone spray as soon as possible. Ensure quiet, warmth, and provide resuscitation if necessary. In the event of respiratory distress ensure that the patient inhales oxygen. Secure the breathing, heart and circulatory function. ---

4.1.4 After ORAL Intake

After oral intake lots of water with activated charcoal supplement should be drunk after it has been ingested.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye damage.

CMR Effekte:

4.3 Indication of any immediate medical attention and special treatment needed

After SKIN CONTACT rinse with water for a long time. Apply glucocorticosteroides following inflammatory reactions. After EYE CONTACT rinse immediately with plenty of water for a long time. Eyelid convulsion measures. Name the corrosive chemical. Further treatment must be carried out by an eye specialist. In the event of RESPIRATORY DISTRESS ensure that the patient inhales oxygen. TOXIFICATION: Treat symptomatically. Secure the breathing, heart and circulatory function. Remove the substance quickly from the body. Mechanically induce vomiting or ensure the patient eats medicinal charcoal compressed tablets or drinks aluminium oxide drug suspensions. In order to ensure rapid passage through the colon (administer 2 tablespoons of dissolved Glauber's salt). Alleviation of pain, if necessary sedation. Shock treatment. Administer a prophylaxis to counter pulmonary oedema. ---

SECTION 5: Firefighting measures

5.1 Extinguishing media

5.1.1 Suitable extinguishing media

Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.

5.1.2 Unsuitable extinguishing media

no data available

5.2 Special hazards arising from the substance or mixture

Formation of hazardous and caustic vapour-air mixtures possible.



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5.3 Advice for firefighters

No, for listed product. Product package burns like paper or plastic. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.
For great amount - if necessary - protective breathing apparatus which is independent of the ambient air (isolated equipment), and sealed protective clothing is necessary in the event of a large-scale formation of toxic substances.

5.4 Additional information

Danger for environment **only in the event of a large-scale leakage** or formation of hazardous substances.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe vapours. Wear suitable protective gloves (see 8.2.2). Wear eye protection, respectively face protection. Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.

6.2 Environmental precautions

Avoid contact of substance/mixture to environment.

PBT: not applicable

vPvB: not applicable

6.3 Methods and material for containment and cleaning up

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water. Collect small amounts of leaked liquid and flush with water into drains.

6.4 Reference to other sections

see information in section 5.4,7,8 and 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product. Use only in well-ventilated working areas. Use a safety bottle when shaking test tubes.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging . Products which are also classified as toxic must be kept under lock and key. Storage class (German chemical industry): see chapter 12.1

Storage class (VCI): 5.1B

Water hazard class (DE): 3

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage, and store in a well-ventilated place at max. 25 °C, away or preferably separate from substances with which a hazardous reaction could take place, so that they are not immediately accessible to outside parties. Use inbreakable container for transport of glass bottles.

7.3 Specific end use(s)

Product for analytical use.

SECTION 8: Exposure controls /personal protection

8.1 Control parameters

40 mg Zinc 4, lyophilized (R0)

Chemical: *potassium cyanide*

CAS No.: 151-50-8

EU value: CN: [TWA] 1 / [STEL] 5 mg/m³

TRGS 900 (DE): [CN 8h] 1 / [15min] 5 mg/m³

E/e respirable

Short-term exposure factor: (4), H

skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 5 CN e mg/m³

NIOSH: not listed

NIOSH STEL: skin, HCN 4.7 ppm / 5 mg/m³

[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: EPCRA/SARA Section 302 Extremely Hazardous Substances Yes (TPQ = 100 lbs) n/a; TWA_{skin, HCN} 10 ppm / 11 mg/m³



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Chemical: *sodium tetraborate* CAS No.: 12267-73-1
 TRGS 900 (DE): [B] 0.5 mg/m³
 E/e respirable
 Short-term exposure factor: 2 (I), Y
 skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded
 SUVA(CH) MAK value: [als B][MAK] 0,8e*/[STEL] 0,8e* mg/m³
 NIOSH: not listed ppm
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
 OSHA: not listed ppm

Chemical: *Zincon* CAS No.: 62625-22-3

3 g Zinc 4 (R3)

Chemical: *hydrogen peroxide urea* CAS No.: 124-43-6
 TRGS 900 (DE): H₂ O₂ 1 ppm / 1,4 mg/m³
 E/e respirable
 SUVA(CH) MAK value: H₂ O₂ 1 ppm / 1,4 mg/m³

5 mL Zinc 4 (R2)

Chemical: *chloral hydrate* CAS No.: 302-17-0
 NIOSH: not listed
 [TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
 OSHA: not listed

8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

8.2.1 Respiratory protection

Use for open access of these substances for example a protection filter, class A/AX. No additional recommendations.

8.2.2 Skin protection / Hand protection

Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

8.2.3 Eye / Face Protection

Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection or face protection.

8.2.4 Skin protection

Recommended to avoid contamination with these hazards.

8.2.5 Personal hygiene

Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.

8.2.6 Thermal hazards

no data available

8.3 Limitation and monitoring of environmental exposure

Do not release product into environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

40 mg Zinc 4, lyophilized (R0)

a) State of aggregation:	solid (lyophilized)
b) Colour:	red
c) Odor:	bitter almond
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	9-10



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l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient (o/w) :	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

3 g Zinc 4 (R3)

a) State of aggregation:	solid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	instable 75-85 °C
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	6
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient (o/w) :	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1,39 sol. g/cm ³
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

5 mL Zinc 4 (R2)

a) State of aggregation:	liquid
b) Colour:	slightly yellow
c) Odor:	organic
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	3,5-5,5
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient (o/w) :	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1,24 g/cm ³
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

9.2 Other information

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.
Properties relevant to substance groups

SECTION 10: Stability and reactivity

10.1 Reactivity

no further data available.



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10.2 Chemical stability

no known instability.

10.3 Possibility of hazardous reactions

Possible: &H:EUH031& No further data available.

10.4 Conditions to avoid

Observe the storage temperature printed on it. No more required.

10.5 Incompatible materials

no additional data available

10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

SECTION 11: Toxicological information

11.1 Information on the hazard classes according regulation (EC) 1272/2008

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

40 mg Zinc 4, lyophilized (R0)

Chemical:	<i>potassium cyanide</i>	CAS No.:	151-50-8
TSCA Inventory:	listed	California Proposition 65 List:	not listed
Target Organs:	act on blood or hemato-poietic system: decrease hemoglobin function; deprive body tissues of oxygen		
Symptoms:	cyanosis; loss of consciousness		
Australia NICNAS:	not listed	Canada CEPA 1999:	DSL Yes
Japan CSCL/PRTR:	Poisonous substance, PRTR: ≥1,0% CN class I, Japan PDSCL: Poisonous Substance		
Japan ISHL:	listed ≥1,0%/≥1,0%, Article 57-1+2 (Labelling&SDS required)		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	KE-29092, >1% Toxic 97-1-90		
LD50 orl rat :	5 mg/kg		
LC _{Low} orl hmn :	2,86 mg/kg		
LD50 orl mus :	8,5 mg/kg		
LD50 scu rat :	7,8 mg/kg		
Acute Effects:	Cause severe after oral intake, inhalation of vapours, skin contact, impairments of health or can lead to death even when only ingested in small quantities.		
TRGS 905 (DE):	R F C		

Chemical:	<i>sodium tetraborate</i>	CAS No.:	12267-73-1
TSCA Inventory:	not listed	California Proposition 65 List:	not listed
Australia NICNAS:	not listed	Canada CEPA 1999:	not listed
Japan CSCL/PRTR:	PRTR: ≥1,0%B class I, Japan PDSCL: not listed		
Japan ISHL:	not listed		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	KE-33255		
LD50 orl rat :	2660 mg/kg		

Carcinogenic Effects: May damage fertility. May damage the unborn child.
 EU carcinogen: R D 1B, R F 1B

Chemical:	<i>Zincon</i>	CAS No.:	62625-22-3
TSCA Inventory:	listed		
LD50 orl rat :	> 2000 mg/kg		

3 g Zinc 4 (R3)

Chemical:	<i>hydrogen peroxide urea</i>	CAS No.:	124-43-6
TSCA Inventory:	listed		
Japan CSCL/PRTR:	not listed, Japan PDSCL: Deleterious substance,		
Japan ISHL:	not listed		
Korea Exist.Chem.Inventory:	KE-35147, >17% Toxic 97-1-3		
LD50 orl rat :	> 2000 mg/kg		
Acute Effects:	Cause after inhalation of vapours/dust, impairments of health when ingested in small quantities.		
TRGS 905 (DE):	K4, R F C		



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5 mL Zinc 4 (R2)

Chemical: *chloral hydrate* CAS No.: 302-17-0
 TSCA Inventory: listed California Proposition 65 List: listed, cancer
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
 Japan ISHL: not listed
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-34070
 LD50 orl rat : 479 mg/kg
 LC_Low orl hmn : 4 mg/kg
 LD50 ihl rat : 3030 mg/L
 Acute Effects: Cause severe after oral intake, impairments of health or can lead to death even when only ingested in small quantities.

11.2 Other hazards

Possible endocrine disrupting effects
 no data available

Other information
 no additional data available

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

40 mg Zinc 4, lyophilized (R0)

Chemical: *potassium cyanide* CAS No.: 151-50-8
 LC50 daphnia magna/48h : 2 48h ; 0.53 24h mg/L
 LC50 fish/96h : 0.45 mg/L
 EC50 daphnia/48h : 0.041 mg/L
 IC50 scenedesmus quadricauda/72h : 0.03 8d mg/L
 EC10 pseudomonas putita/16h : EC10/16h: 0.001 mg/L
 Water hazard class (DE): 3 WGK No.: 338
 Storage class (VCI): 6.1 B

Chemical: *sodium tetraborate* CAS No.: 12267-73-1
 LC50 fish/96h : 74 mg/L
 EC50 daphnia/48h : 242 24h mg/L
 IC50 scenedesmus quadricauda/72h : EC10/96h: 24 mg/L
 Water hazard class (DE): 1 WGK No.: 0037
 Storage class (VCI): 6.1 D

Chemical: *Zincon* CAS No.: 62625-22-3
 Water hazard class (DE): 3
 Storage class (VCI): 12-13

3 g Zinc 4 (R3)

Chemical: *hydrogen peroxide urea* CAS No.: 124-43-6
 Water hazard class (DE): 1 WGK No.: (0288 H2O2)
 Storage class (VCI): 5.1 B

5 mL Zinc 4 (R2)

Chemical: *chloral hydrate* CAS No.: 302-17-0
 Avoid contact of substance/mixture to environment.
 Water hazard class (DE): 2 WGK No.: 0051
 Storage class (VCI): 6.1 D

12.2 Persistence and degradability

not necessary

12.3 Bioaccumulative potential

not necessary



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12.4 Mobility in soil

not necessary

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

12.6 Endocrine disrupting properties

no data available

12.7 Other adverse effects

no additional data available

SECTION 13: Disposal considerations

Do not collect in acidic waste. May form toxic gases.

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06). Close container tightly.

13.1 Waste treatment methods

Not necessary, see above.

SECTION 14: Transport information

14.1. UN number: 3316

14.2. UN proper shipping name: Chemical Kit

14.3. Class: 9 **14.4. Packing group:** II

Road transport ADR

Classification code: M11 Tunnel restriction code: E

Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation

Air transport ICAO

PAX: 960 max. weight PAX: 10 KG

CAO: 960 max. weight CAO: 10 KG

Maritime transport IMDG

EmS: F-A, S-P Storage category: A

Or use **Alternative declaration for transportation:**

14.1 UN number: 1511 **14.2 UN proper shipping name:** Urea hydrogen peroxide

14.3 Class: 5.1 **Additionally class:** 8 **14.4 Packing group:** III

Road transport ADR

Classification code: OC2 Tunnel restriction code: E

Limited Quantity: 5 Kg

Excepted Quantity: E 1

Air transport ICAO

Limited Quantity: LQ 12

Excepted Quantity: E 1

PAX: 559 max. weight PAX: 25 Kg

CAO: 563 max. weight CAO: 100 Kg

Maritime transport IMDG

EmS: F-A, S-Q Storage category: A

14.1 UN number: 1588 **14.2 UN proper shipping name:** Cyanides, inorganic, solid, n.o.s. (potassium cyanide mixture)

14.3 Class: 6.1 **14.4 Packing group:** II

Road transport ADR

Classification code: T5 Tunnel restriction code: E

Limited Quantity: 500 g

Excepted Quantity: E 4

Air transport ICAO

Limited Quantity: LQ 18

Excepted Quantity: E 4

PAX: 669 max. weight PAX: 25 Kg

CAO: 676 max. weight CAO: 100 Kg

Maritime transport IMDG

EmS: F-A, S-A Storage category: A

Maritime pollutant (5.2.1.6): P (Limited Quantity (LQ) until 5 L/kg per inner package)



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14.1 UN number: 2810 **14.2 UN proper shipping name:** Toxic liquid, organic, n.o.s. (chloral hydrate solution)
14.3 Class: 6.1 **14.4 Packing group:** II
Road transport ADR
 Classification code: T1
 Limited Quantity: 100 mL Tunnel restriction code: E
 Excepted Quantity: E 4
Air transport ICAO
 Limited Quantity: LQ 17
 Excepted Quantity: E 4
 PAX: 654 max. weight PAX: 5 L
 CAO: 662 max. weight CAO: 60 L
Maritime transport IMDG
 EmS: F-A, S-A Storage category: B

- 14.5 Environmental hazards**
none, contains only small quantities of hazardous substances, contains only small amounts of these substances
- 14.6 Special precautions for user**
not necessary
- 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code**
Not applicable.

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
 Chemicals Prohibition Ordinance - (DE: ChemVerbotsV), aktualisiert Jan 2017
 Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020
 Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017
 TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017
 TRGS 220, National aspects when preparing safety data sheets, Jan 2017
 TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017
 TRGS 401, Skin contact hazard - identification, assessment, action, Jun 2008, status: Feb 2011
 BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012
 TRGS 500, Protective measures, Mai 2008
 TRGS 510, Storage of hazardous substances in portable containers from March 2013, status: Oct 2015
 Chapter 4, Measures when storing hazardous substances up to 50 kg (small quantity regulation)
 Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016
 MN leaflet/instructions for use, also at www.mn-net.com
 If necessary, observe other country-specific regulations.

- 15.2 Chemical safety assessment**
not necessary for these small amounts

SECTION 16: Other information

- 16.1 Changes compared to the last version**
Between versions 2.2.3.2 and 2.2.2.2 following changes were applied: - 1 composition data corrected

16.2 List of H and P phrases

- 16.2.1 List of relevant H phrases**

H272	May intensify fire; oxidizer.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.



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H360FD May damage fertility. May damage the unborn child.
 H410 Very toxic to aquatic life with long lasting effects.
 EUH032 Contact with acids liberates very toxic gas.

16.2.2 List of relevant P phrases

P201 Obtain special instructions before use.
 P260sh Do not breathe dust/vapours.
 P280sh Wear protective gloves/eye protection.
 P301+310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 P302+352 IF ON SKIN: Wash with plenty of water.
 P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P405 Store locked up.

16.3 Recommended restriction on use

Only for professional user.
 Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!
 Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!
 An individual package of this product or test kit has a moderate hazardous potential.

16.4 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021
 Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres
 Directive 2004/37/EC on the protection of workers from the risk of carcinogens or mutagens at workSUVA .CH, limit values in the air at work 2009, revised on 01/2009
 Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)
 Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG
 Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)
 Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)
 Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)
 TRGS 905, German rules of technology for carcinogenic and mutagenic substances, as of March 18, 2016
 Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progressText (11th ATP)
 Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)
 Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)
 TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019
 Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)
 Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG
 Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)
 Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)
 Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)

revisions/updates

Reason for revision: 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary
 2014-04 adjustment according Regulation 487/2013/EU
 2016-03 adjustment according Regulation 1221/2015/EU
 2017-11 adjustment according the ECHA registration dossier
 2022-11 adjustment according Regulation 878/2020/EU

16.5 Further information

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16.6 Legend / Abbreviations

acc: according
 ADR: Convention concerning the International Carriage of Dangerous Goods by Road
 Act: acute
 BAT: biological workplace tolerance value
 CAO: Cargo Aircraft Only
 Carc: carcinogen
 CAS: Chemical Abstracts Service
 CLP: Classification, Labelling and Packaging regulation
 CMR: carcinogen, mutagen, reproduction toxic



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Corr: corrosive
 COD: chemical oxygen demand
 CSCL: Chemical Substance Control Law (Jp)
 Dam: damage
 DNEL: Derived No-Effect Level (for workers)
 derm: dermal
 dog: dog
 EC10: Concentration causing a toxic effect in 10% of the test organisms
 EC: European Community
 EC-Nr: Substance number of the EC substance inventory
 EmS: Guide to accident management measures on ships
 EU: European Union
 fish: fish (not specified)
 GHS: Global Harmonized System of Classification and Labeling of Chemicals
 gpg: guinea pig
 ICAO: International Civil Aviation Organization
 ihl: inhaled
 IMDG: International Maritime Dangerous Goods Code
 intrav: intravenous
 ipt: intraperitoneal
 ISHL: Industrial Safety and Health Law (Jp)
 LC50: letale concentration 50%
 LD50: letale dosis 50%
 leuciscus idus: fisch, ide, orfe
 MAK: maximum workplace concentration
 Met: Metall
 mus: mouse
 Muta: mutagen
 NIOSH: National Institute for Occupational Safety and Health (US)
 NRD: Non-rapidly degradable
 onchorhynchus mykiss: fisch, rainbow trout
 orl: oral
 OSHA: Occupational Safety and Health Administration
 PAX: transport on passenger planes allowed
 PBT: persistent, bioaccumulating, toxic substance
 pH: pH value
 pimephales promelas: fisch, fathead minnow
 PNEC: Predicted No Effected Concentration
 PROC 15: Process category 'for laboratory use'
 PRTR: Law for PRTR and Promotion of Chemical Management (Jp)
 PVC: polyvinyl chloride
 quail: bird, quail
 rat: rat
 rbt: rabbit
 RD: rapidly degradable
 RE: repeated
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
 REF: item number, reference number
 Reg.No.: rRegistration number
 Repr: harmful to reproduction
 Resp: respiratory
 RIP: REACH Implementations Projects
 scu: sub cutan
 SDS: safety data sheet
 Sens: sensitisation
 STEL: short term exposure limit
 STOT: Specific Target Organ Toxicity
 SVHC: Substance of Very High Concern
 t/a: tons per year
 TCCA: Toxic Chemicals Control Act (S. Korea)
 Tox: toxic
 TSCA: The Toxic Substances Control Act (US)
 TWA: time weighted average
 TRGS: technical regulations (DE)
 vPvB: very persistent, very bioaccumulating substance



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16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.



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