Safety Data Sheet

according to Regulations REACh 1907/2006/EC

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

1.1 Product identifier

REF 91895
Product name NANOCOLOR Zinc

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 100 mL Zinc (R1) UFI: VJ2U-H3YH-F200-E3TM
1 x 100 mL Zinc (R2)
1 x 100 mL Zinc (R3) UFI: KRTT-G35D-J20Y-71SR

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
Valencienner 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>**

SECTION 2: Hazard identification

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

GHS06 GHS07 GHS08 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
H301	Acute Tox. 3 oral
H311	Acute Tox. 3 derm.
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H331	Acute Tox. 3 inh.
H360FD	Repr. 1 B
H411	Aquatic Chronic 2
EUH032	not defined

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

100 mL Zinc (R1)

GHS06 GHS08 GHS09

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH032	not defined
H301	Acute Tox. 3 oral
H311	Acute Tox. 3 derm.
H331	Acute Tox. 3 inh.
H360FD	Repr. 1 B
H411	Aquatic Chronic 2

100 mL Zinc (R3)

GHS06 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H301	Acute Tox. 3 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2

100 mL Zinc (R2)

Do not need labelling as hazardous

Signal word -

No hazard class

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 identificator(s) (EU 1272/2008 Annex I - 1.5.1.2). 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).

100 mL Zinc (R1)

GHS06 GHS08 GHS09

Signal word: DANGER
H301, H311, H331, H360FD, EUH032
Toxic if swallowed.Toxic in contact with skin.Toxic if inhaled.May damage fertility. May damage the unborn child.Contact with acids liberates very toxic gas.
P201, P202, P260D, P264, P270, P271, P280sh, P301+310, P302+352, P330, P361+364, P405, P501
Obtain special instructions before use.Do not handle until all safety precautions have been read and understood.Do not breathe vapours.Wash hands thoroughly after handling.Do not eat, drink or smoke when using this product.Use only outdoors or in a well-ventilated area.Wear protective gloves/eye protection.IF SWALLOWED: Immediately call a POISON CENTER/ doctor.IF ON SKIN: Wash with plenty of water.Rinse mouth.Take off immediately all contaminated clothing and wash it before reuse.Store locked up.Dispose of contents/container to regulated waste treatment.

100 mL Zinc (R3)

GHS06 GHS07

Signal word: DANGER
H301
Toxic if swallowed.
P264, P270, P301+310, P330, P405, P501
Wash hands thoroughly after handling.Do not eat, drink or smoke when using this product.IF SWALLOWED: Immediately call a POISON CENTER/ doctor.Rinse mouth.Store locked up.Dispose of contents/container to regulated waste treatment.

100 mL Zinc (R2)

Do not need labelling as hazardous
Signal word: -

Label elements of the complete product

GHS06 GHS07 GHS08 GHS09

Signal word: DANGER
H301, H311, H331, H360FD, EUH032
Toxic if swallowed.Toxic in contact with skin.Toxic if inhaled.May damage fertility. May damage the unborn child.Contact with acids liberates very toxic gas.
P201, P202, P260D, P264, P270, P271, P280sh, P301+310, P302+352, P330, P361+364, P405, P501
Obtain special instructions before use.Do not handle until all safety precautions have been read and understood.Do not breathe vapours.Wash hands thoroughly after handling.Do not eat, drink or smoke when using this product.Use only outdoors or in a well-ventilated area.Wear protective gloves/eye protection.IF SWALLOWED: Immediately call a POISON CENTER/ doctor.IF ON SKIN: Wash with plenty of water.Rinse mouth.Take off immediately all contaminated clothing and wash it before reuse.Store locked up.Dispose of contents/container to regulated waste treatment.

2.3 Other hazards

Possible hazards from physicochemical properties
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
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. May damage fertility. May damage the unborn child.

Information pertaining to particular risks to the environment
Should not be released into the environment.
PBT: not applicable
vPvB: not applicable

Possible endocrine disrupting effects
no data available

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

100 mL Zinc (R1)

Substance name: *boric acid*
CAS No.: 10043-35-3

Substance rating: H360FD, Repr. 1 B
Formula: H_3BO_3
Pseudonym (de): Orthoborsäure, E284
REACH Reg. No.: 01-2119486683-25-0024
SVHC listed: **listed (18/06/2010) Cand. Lst. REACH Art59(10)**
EC No.: 233-139-2 Indice No.: 005-007-00-2
Concentration: 0,5 - <5,5 %
acc. CLP (GHS): H360FD, Repr. 1 B

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 Indice No.: 006-007-00-5
Concentration: 1 - <7 % Correlation factor: x 0.40 (= $\%CN^-$)
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): H301, Acute Tox. 3 oral, H311, Acute Tox. 3 derm., H331, Acute Tox. 3 inh., H411, Aquatic Chronic 2, EUH032, not defined

100 mL Zinc (R3)

Substance name: *chloral hydrate*
CAS No.: 302-17-0

Substance rating: H301, Acute Tox. 3 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2
Formula: $C_2H_3Cl_3O_2 \cdot H_2O$
Pseudonym (de): Trichloracetaldehydhydrat
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

100 mL Zinc (R2)

Substance name: *dimethyl sulfoxide*
CAS No.: 67-68-5

Substance rating: No criteria for classification or naming of chemical not required.
Formula: C_2H_6OS
Pseudonym (de): DMSO
REACH Reg. No.: 01-2119431362-50-xxxx
EC No.: 200-664-3
Concentration: 80 - <100 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

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 with eye washing bottle, eye douche or running water (protect intact eye).

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

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. In the event of RESPIRATORY DISTREES 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.

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. 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

Should not be released into the 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.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage is guaranteed in the original packaging from MACHEREY-NAGEL. 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): 6.1B
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

100 mL Zinc (R2)

Chemical: *dimethyl sulfoxide* CAS No.: 67-68-5

DNEL: 394 $_{inh}$ mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC $_{(fresh\ water)}$: 17 mg/L
PNEC = Predicted No Effected Concentration

TRGS 900 (DE): 50 ppm / 160 mg/m³
E/e respirable

Short-term exposure factor: 2 (I), H, Z
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 50 ppm / 160 mg/m³

100 mL Zinc (R1)

Chemical: *boric acid* CAS No.: 10043-35-3

DNEL: [derm] 392 mg/kg bw/day; [inh] 8.3 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC $_{(fresh\ water)}$: 2.9 mg/L
PNEC = Predicted No Effected Concentration

TRGS 900 (DE): 0.5 E 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: [Bor][MAK] 1,8e/[STEL] 1,8e mg/m³

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

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

100 mL Zinc (R3)
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.

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

100 mL Zinc (R2)

a) State of aggregation:	liquid
b) Colour:	red
c) Odor:	fusty, mouldy
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:	95 °C
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	no data available
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient ($K_{o/w}$):	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

100 mL Zinc (R1)

a) State of aggregation:	liquid
b) Colour:	colourless
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:	12,3-12,7

l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient ($K_{o/w}$):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1,06 g/cm³
q) Relative vapour density $_{(air=1)}$:	no data available
r) Particle size:	no data available

100 mL Zinc (R3)

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 ($K_{o/w}$):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1,24 g/cm³
q) Relative vapour density $_{(air=1)}$:	no data available
r) Particle size:	no data available

9.2 Other information

9.2.1 Information on physical hazard classes

no data available

9.2.2 Other safety-related parameters

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.

SECTION 10: Stability and reactivity

10.1 Reactivity

no further data available.

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

Avoid contact with strong acids or alkalines.

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.

100 mL Zinc (R2)

Chemical: *dimethyl sulfoxide* CAS No.: 67-68-5
TSCA Inventory: listed
Korea Exist.Chem.Inventory: KE-32367
LD50 orl rat : 14500 mg/kg

100 mL Zinc (R1)

Chemical: *boric acid* CAS No.: 10043-35-3
TSCA Inventory: listed California Proposition 65 List: not listed
Australia NICNAS: not listed Canada CEPA 1999: DSL yes
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-03499
LD50 orl rat : > 3765 mg/kg
LC50 ihl rat : 2,12 mg/L/4H

Carcinogenic Effects: May damage fertility. May damage the unborn child.
EU carcinogen: R D 1B, R F 1B
TRGS 905 (DE): R E 2, R F 2

Chemical: *potassium cyanide* 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

100 mL Zinc (R3)

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.

100 mL Zinc (R2)
Substance name: *dimethyl sulfoxide* CAS-Nr.: 67-68-5
PNEC (fresh water) : 17 mg/L
PNEC = Predicted No Effected Concentration = concentration at which no effect on the environment is expected
LC50 fish/96h : 38.5 g/L
EC50 daphnia/48h : 24.6 g/L
EC10 pseudomonas putita/16h : EC/16h: 7100 mg/L
Water hazard class (DE): 1 WGK No.: 5050
Storage class (VCI): 12

100 mL Zinc (R1)
Substance name: *boric acid* CAS-Nr.: 10043-35-3
PNEC (fresh water) : 2.9 mg/L
PNEC = Predicted No Effected Concentration = concentration at which no effect on the environment is expected
LC50 fish/96h : [4d] 79.7 mg/L
EC50 daphnia/48h : 91-165 mg/L
IC50 scenedesmus quadricauda/72h : [72h] 52.4 mg/L
EC10 pseudomonas putita/16h : [EC10] 10 mg/L
Water hazard class (DE): 1 WGK No.: 0315
Storage class (VCI): 6.1 D

Substance name: *potassium cyanide* CAS-Nr.: 151-50-8
Toxic to aquatic life with long lasting effects. Do not release into the environment.
Environmentally hazardous substances/mixtures up to 125 mL do not have to be labeled with H and P statements (EU 1272/2008 Annex I Paragraph 1.5.2).
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

100 mL Zinc (R3)
Substance name: *chloral hydrate* CAS-Nr.: 302-17-0
Do not release into the environment.
Water hazard class (DE): 2 WGK No.: 0051
Storage class (VCI): 6.1 D

12.2 Persistence and degradability

12.3 Bioaccumulative potential

100 mL Zinc (R2)
Substance name: *dimethyl sulfoxide* CAS-Nr.: 67-68-5
Dispersion coefficient ($K_{o/w}$): -1,35

100 mL Zinc (R1)
Substance name: *boric acid* CAS-Nr.: 10043-35-3
Dispersion coefficient ($K_{o/w}$): -1,09

12.4 Mobility in soil

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

Normally it is possible to empty small amounts (diluted!) into drains.
Dispose of contents/container to regulated waste treatment.

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 IATA DGR

Limited Quantity:	PAX:	960	max. quantity PAX:	10 KG
	CAO:	960	max. quantity CAO:	10 KG

Maritime transport IMDG

EmS:	F-A, S-P	Staukategorie:	A

Or use **Alternative declaration for transportation:**

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: III

Road transport ADR

Classification code:	T1		
Limited Quantity:	5 L	Tunnel restriction code:	E
Excepted Quantity:	E 1		

Air transport IATA DGR

Limited Quantity:	PAX: 655	max. quantity PAX:	60 L
	CAO: 663	max. quantity CAO:	220 L
Excepted Quantity:	E 1		

Maritime transport IMDG

EmS:	F-A, S-A	Staukategorie:	A
Special instructions:	223, 274		

14.1 UN number: 3413
14.2 UN proper shipping name: Potassium cyanide solution
14.3 Class: 6.1
14.4 Packing group: II

Road transport ADR

Classification code:	T4		
Limited Quantity:	100 mL	Tunnel restriction code:	E
Excepted Quantity:	E 4		

Air transport IATA DGR

Limited Quantity:	PAX: 654	max. quantity PAX:	5 L
	CAO: 662	max. quantity CAO:	60 L
Excepted Quantity:	E 4		

Maritime transport IMDG

EmS:	F-A, S-A	Staukategorie:	B

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

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 Carriage in bulk by sea in accordance with IMO instruments

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 2.2.2.3 and 2.2.2.2 following changes were applied: - 1 substance data corrected

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

H	Between versions 2.2.2.3 and 2.2.2.2 following changes were applied: - 1 substance data corrected
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H360FD	May damage fertility. May damage the unborn child.
H411	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.
P202	Do not handle until all safety precautions have been read and understood.
P260D	Do not breathe vapours.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
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.
P330	Rinse mouth.
P361+364	Take off immediately all contaminated clothing and wash it before reuse.

P405	Store locked up.
P501	Dispose of contents/container to regulated waste treatment.

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)
Regulation 692/2022/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (18th 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
Corr:	corrosive
COD:	chemical oxigen 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 spezified)
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:	intraperitonaeal
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:	fish, 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:	fish, 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

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.