according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Copper(II) hydroxide ≥ 98%, extra pure

article number: 9864 date of compilation: 2017-09-07 Version: 1.0 en

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

Product identifier 1.1

Identification of the substance Copper(II) hydroxide

Article number 9864

Registration number (REACH) This information is not available.

Index No 029-021-00-3 EC number 243-815-9 20427-59-2 CAS number

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

Identified uses:

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 : Department Health, Safety and Environment

sheet

e-mail (competent person) : sicherheit@carlroth.de

1.4 **Emergency telephone number**

> **Emergency information service** Poison Centre Munich: +49/(0)89 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Classification acc. to GHS Section **Hazard class** Hazard class and cat-Hazard stateegory ment 3.10 (Acute Tox. 4) H302 acute toxicity (oral) 3.1I acute toxicity (inhal.) (Acute Tox. 2) H330 3.3 serious eye damage/eye irritation (Eye Dam. 1) H318 4.1A (Aquatic Acute 1) H400 hazardous to the aquatic environment - acute hazard 4.1C hazardous to the aquatic environment - chronic hazard (Aquatic Chronic 1) H410

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2.2 **Label elements**

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

Signal word **Danger**

Pictograms







Hazard statements

H302 Harmful if swallowed H318 Causes serious eye damage

H330 Fatal if inhaled

H410 Very toxic to aquatic life with long lasting effects

Precautionary statements

Precautionary statements - prevention

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment. P284 Wear respiratory protection.

Precautionary statements - response

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

Labelling of packages where the contents do not exceed 125 ml

Signal word: Danger

Symbol(s)







H318 Causes serious eye damage.

H330 Fatal if inhaled.

P284 Wear respiratory protection.

P304+P340 IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to

do. Continue rinsing.
Immediately call a POISON CENTER/doctor.

2.3 Other hazards

There is no additional information.

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SECTION 3: Composition/information on ingredients

3.1 **Substances**

Name of substance Copper(II) hydroxide

Index No 029-021-00-3 EC number 243-815-9 CAS number 20427-59-2

CuH₂O₂ Molar mass 97,56 g/mol

SECTION 4: First aid measures

Molecular formula

4.1 **Description of first aid measures**



General notes

Self-protection of the first aider.

Following inhalation

Remove person to fresh air and keep comfortable for breathing. Call a physician immediately. If breathing is irregular or stopped, administer artificial respiration.

Following skin contact

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

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.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a physician in any case.

4.2 Most important symptoms and effects, both acute and delayed

Nausea, Vomiting, Breathing difficulties, Dyspnoea, Unconsciousness, Risk of serious damage to eyes

4.3 Indication of any immediate medical attention and special treatment needed

none

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products

in case of fire and/or explosion do not breathe fumes

5.3 Advice for firefighters

Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Do not breathe dust. Use appropriate respiratory protection. Avoid contact with skin, eyes and clothes. Use personal protective equipment as required.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Take up mechanically. Control of dust.

Other information relating to spills and releases

Place in appropriate containers for disposal.

6.4 Reference to other sections

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

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use extractor hood (laboratory). Avoid dust formation. When not in use, keep containers tightly closed.

• Measures to prevent fire as well as aerosol and dust generation

Removal of dust deposits.

Advice on general occupational hygiene

Never keep food or drink in the vicinity of chemicals. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a dry place.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

Store locked up.

• Ventilation requirements

Use local and general ventilation.

• Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Cou try		Name of agent	Notation	Identifier	TWA [mg/m³]	STEL [mg/m³]	Source
GB	3	dust	i	WEL	10		EH40/2005
GB	}	dust	r	WEL	4		EH40/2005

Notation

TWA

i Inhalable fraction r Respirable fraction

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-

minute period unless otherwise specified

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

hours time-weighted average

Relevant DNELs/DMELs/PNECs and other threshold levels

environmental values

Endpoint	Threshold level	Environmental compartment
PNEC	7,8 ^{µg} / _l	freshwater
PNEC	5,2 ^{µg} / _l	marine water
PNEC	230 ^{µg} / _I	sewage treatment plant (STP)
PNEC	87 ^{mg} / _{kg}	freshwater sediment

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Endpoint	Threshold level	Environmental compartment
PNEC	676 ^{mg} / _{kg}	marine sediment
PNEC	65 ^{mg} / _{kg}	soil

8.2 Exposure controls

Individual protection measures (personal protective equipment)







Eye/face protection

Use safety goggle with side protection.

Skin protection

hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

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: Dust formation. Particulate filter device (EN 143). P3 (filters at least 99,95 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state solid (powder)
Colour greenish-blue
Odour odourless

Odour threshold No data available

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Other physical and chemical parameters

pH (value) This information is not available.

80 – 160 °C (slow decomposition) Melting point/freezing point

Initial boiling point and boiling range This information is not available.

Flash point not applicable

no data available **Evaporation rate**

Flammability (solid, gas) These information are not available

Explosive limits

 lower explosion limit (LEL) this information is not available

 upper explosion limit (UEL) this information is not available

Explosion limits of dust clouds these information are not available

Vapour pressure This information is not available.

Density $3,37 \, {}^{9}/_{cm^{3}}$ at 20 °C

This information is not available. Vapour density

Relative density Information on this property is not available.

Solubility(ies)

Water solubility 2,9 ^{mg}/_l at 20 °C , practically insoluble

Partition coefficient

This information is not available. n-octanol/water (log KOW)

Information on this property is not available. Auto-ignition temperature

Decomposition temperature >80 °C (ECHA)

not relevant (solid matter) Viscosity

Explosive properties Shall not be classified as explosive

Oxidising properties none

9.2 Other information

There is no additional information.

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SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

Hygroscopic solid.

10.3 Possibility of hazardous reactions

No known hazardous reactions

10.4 Conditions to avoid

Keep away from heat. Decompostion takes place from temperatures above: >80 °C. Protect from moisture.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
oral	LD50	451 ^{mg} / _{kg}	rat	ECHA
inhalation: dust/mist	LC50	0,56 ^{mg} / _l /4h	rat	ECHA
dermal	LD50	>2.000 ^{mg} / _{kg}	rabbit	ECHA

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor 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.

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Symptoms related to the physical, chemical and toxicological characteristics

If swallowed

vomiting, nausea

• If in eyes

Causes serious eye damage, risk of blindness

If inhaled

breathing difficulties, Dyspnoea, unconsciousness

• If on skin

Frequently or prolonged contact with skin may cause dermal irritation

Other information

None

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute)

Very toxic to aquatic organisms.

Endpoint	Value	Species	Exposure time
LC50	0,13 ^{mg} / _l	fish	96 h
EC50	0,04 ^{mg} / _l	daphnia magna	48 h
EC50	35 ^{mg} / _l	Grünalge	96 h

Aquatic toxicity (chronic)

May cause long-term adverse effects in the aquatic environment.

12.2 Process of degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

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

SECTION 14: Transport information

14.1	UN number	3288
14.2	UN proper shipping name	TOXIC SOLID, INORGANIC, N.O.S.
	Hazardous ingredients	Copper(II) hydroxide
14.3	Transport hazard class(es)	
	Class	6.1 (toxic substances)
14.4	Packing group	II (substance presenting medium danger)
14.5	Environmental hazards	hazardous to the aquatic environment

14.6 Special precautions for user

Danger label(s)

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	3288
Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S.
Particulars in the transport document	UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Copper(II) hydroxide), 6.1, II, (D/E), environmentally hazardous
Class	6.1
Classification code	T5
Packing group	II

6.1 + "fish and tree"

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Environmental hazards yes (hazardous to the aquatic environment)

Special provisions (SP) 274, 802(ADN)

• International Maritime Dangerous Goods Code (IMDG)

UN number 3288

Proper shipping name TOXIC SOLID, INORGANIC, N.O.S.

Particulars in the shipper's declaration UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Cop-

per(II) hydroxide), 6.1, II, MARINE POLLUTANT

Class 6.1

Marine pollutant yes (P) (hazardous to the aquatic environment)

Packing group II

Danger label(s) 6.1 + "fish and tree"



Special provisions (SP) 274

Excepted quantities (EQ) E4

Limited quantities (LQ) 500 g

EmS F-A, S-A

Stowage category B

• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number 3288

Proper shipping name Toxic solid, inorganic, n.o.s.

Particulars in the shipper's declaration UN3288, Toxic solid, inorganic, n.o.s., (Copper(II)

hydroxide), 6.1, II

Class 6.1

Environmental hazards yes (hazardous to the aquatic environment)

Packing group II
Danger label(s) 6.1

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Special provisions (SP) A3, A5

Excepted quantities (EQ) E4

Limited quantities (LQ) 1 kg

SECTION 15: Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture Relevant provisions of the European Union (EU)
 - Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC) Not listed.
 - Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS) Not listed.
 - Regulation 850/2004/EC on persistent organic pollutants (POP) Not listed.
 - Restrictions according to REACH, Annex XVII

Name of substance	CAS No	Wt%	Type of registration	No
Copper(II) hydroxide		100	1907/2006/EC annex XVII	3

 List of substances subject to authorisation (REACH, Annex XIV) not listed

Seveso Directive

2012/18/EU (Seveso III)				
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		
H2	acute toxic (cat. 2 + cat. 3, inhal.)	50 200	41)	

Notation

41)

- Category 2, all exposure routes - category 3, inhalation exposure route

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

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Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

Australian Inventory of Chemical Substances
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
INSQ National Inventory of Chemical Substances
KECI Korea Existing Chemicals Inventory

Korea Existing Chemicals Inventory NZIOC New Zealand Inventory of Chemicals
REACH Reg. REACH registered substances
TCSI Taiwan Chemical Substance Inventory Toxic Substance Control Act

Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

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SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
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
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	short-term exposure limit
TWA	time-weighted average
vPvB	very Persistent and very Bioaccumulative
WEL	workplace exposure limit

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Key literature references and sources for data

Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Regulation (EC) No. 1272/2008 (CLP, EÚ GHS) Dangerous Goods Regulations (DGR) for the air transport (IATA)

International Maritime Dangerous Goods Code (IMDG)

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

Code	Text
H302	harmful if swallowed
H318	causes serious eye damage
H330	fatal if inhaled
H400	very toxic to aquatic life
H410	very toxic to aquatic life with long lasting effects

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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