

“Mock” Cu Safety Data Sheet

Product: Nano-[Cu]-cide

Version 2.0 / EN of 6 June 2016

Replaces all previous versions

Print date: 6 June 2016

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

1.1 Product identifier

Copper fungicide/bactericide
EINECS:
CAS: 20427-59-2

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

Copper fungicide/bactericide is used for agriculture or wood preservation.

See label instructions for allowable application methods

PROC	Identified Uses - Use Description	Agricultural use of Fungicide/bactericide	Wood preservative use of
2	Use continuous (spraying) with occasional controlled exposure	X	X
3	Use in closed batch process		X

1.3. Details of the supplier of the safety data sheet

Company name: N/A
Full address: N/A
Telephone number: N/A
E-mail address of competent person responsible for the SDS: N/A

1.4. Emergency telephone number

Emergency telephone number: N/A
Hours of operation: N/A
Information provided will be limited to: N/A
Service is provided in the following language: English

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1 According to Regulation (EC) No 1272/2008

Hazard class	Hazard category	Classification procedure
Skin irritation	2	On the basis of test data
Serious eye damage/eye irritation	1	On the basis of test data
Skin sensitisation	1	On the basis of literature survey
Specific target organ toxicity single exposure respiratory tract irritation	3	On the basis of literature survey

Hazard statements

H318: Causes moderate eye irritation
H315: Causes skin irritation
H317: May cause an allergic skin reaction
H335: May cause respiratory irritation

2.1.2 According to Council Directive 67/548/EEC

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Xi Irritant
R37/38 Irritating to respiratory system and skin
R41 Risk of serious damage to eyes
R43 May cause sensitisation by skin contact

Dust may cause irritation of the respiratory system.

This product is toxic to fish. This product is toxic to: Aquatic invertebrates

2.2. Label elements

H318 Causes moderate eye irritation
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H335 May cause respiratory irritation
???? Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Metallic taste. Gross overexposure may lead to kidney failure, bloody urine, anemia, loss of consciousness.

P280 Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P338+P310: 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 or doctor/physician
P302+P352+P333+P313: IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention
P261+P304+P340+P312: Avoid breathing dust/fume/gas/mist/vapours/spray. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards

Material does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH (Regulation (EC) No 1907/2006).

SECTION 3: Composition/information on ingredients

3.1. Substances

Product is a mixture of copper hydroxide, Cu(OH)₂, precipitated silica, SiO₂, and inert binder.

<i>Composition information – main constituents</i>					
IUPAC name	EC number	CAS number	Mol. Formula	Typical conc. (%w/w)	Conc. Range (%w/w)
Copper Hydroxide		20427-59-2	Cu(OH) ₂	61	
Silica		7631-86-9	SiO ₂	34	
Other Ingredients				5	

SECTION 4: First aid measures

4.1. Description of first aid measures

General notes

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Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

For medical emergencies involving this product, call toll free 1-800-555-1212. See Label for Additional Precautions and Directions for Use.

Following contact with eyes

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Avoid flushing particles into uninjured eye. If possible, use isotonic water (0.9% NaCl). Contact a specialist of occupational medicine or an eye specialist.

Following skin contact

Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Following inhalation

Move the person to fresh air. Dust in throat and nasal passages should clear spontaneously. If person is not breathing, call an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

Following ingestion

Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.

Notes to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

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

Eyes: May cause irritation with discomfort, pain, redness, or visual impairment

Skin: No adverse effects expected. Prolonged contact may cause: Irritation, There are no reports of human skin sensitization

Inhalation: May cause irritation of respiratory tract. Cough.

Environment: Hazardous to the environment.

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

When contacting a physician, take this SDS with you.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Material is not flammable.

Suitable extinguishing media are water spray, dry chemical, foam, carbon dioxide.

Unsuitable extinguishing media is high volume water jet (contamination risk).

5.2. Special hazards arising from the substance or mixture

Material is non-combustible and non-explosive and will not facilitate or sustain the combustion of other materials.

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5.3. Advice for fire-fighters

Material poses no fire-related hazards. Wear self-contained breathing apparatus; wear full protective equipment. If conditions permit, let fire burn itself out since water may increase the area contaminated. Runoff from fire control may be a pollution hazard.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Wear protective equipment as described under Section 8 and follow the advice for safe handling and use given under Section 7.

6.1.2 For emergency responders

Review fire fighting measures and handling (personnel) sections before proceeding with clean-up. Use appropriate personal protective equipment.
Respiratory protection is needed in situations with high dust levels.

6.2. Environmental precautions

Do not wash material down sewage and drainage systems or into bodies of water (e.g. streams). Follow applicable Federal, State and Local laws/regulations.

6.3. Methods and material for containment and cleaning up

Shovel or sweep up; avoid dust formation; shovel into suitable container for disposal. May also use dry cleanup methods such as vacuum clean-up or vacuum extraction (Industrial portable units equipped with high efficiency air filters (EPA and HEPA filters, EN 1822-1:2009) or equivalent technique), which do not cause airborne dispersion. Never use compressed air. Ensure that the workers wear appropriate personal protective equipment and prevent dust from spreading.

Water spill: If feasible, copper may be precipitated with caustics or other chemicals and the resulting sludge disposed of in a chemical landfill.

6.4. Reference to other sections

See sections 8 and 13 for more details.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

7.1.1 Protective measures

Follow the recommendations as given under Section 8.

Measures to prevent fire

Keep away from heat and sources of ignition.

Measures to prevent aerosol and dust generation

Do not sweep. Use dry cleanup methods such as vacuum clean-up or vacuum extraction, which do not cause airborne dispersion.

Measure to protect the environment

No particular measures.

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7.1.2 Information on general occupational hygiene

Do not handle or store near food and beverages or smoking materials.
In dusty environment, wear dust mask and protective goggles.
Use protective gloves to avoid skin contact.

7.2. Conditions for safe storage, including any incompatibilities

Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place. Keep out of the reach of children.

7.3. Specific end use(s)

No additional information for the specific end uses (see section 1.2).

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Copper hydroxide: 1.5 mg/m³ for 8 and 12 hr. TWA

Silica: 0.3 mg/m³ TWA respirable

8.2. Exposure controls

8.2.1 Appropriate engineering controls

Ensure adequate ventilation.

Measures to reduce generation of dust and to avoid dust propagating in the environment such as dedusting, exhaust ventilation and dry clean-up methods which do not cause airborne dispersion.

8.2.2 Individual protection measures such as personal protection equipment

General: Do not eat, drink or smoke when working to avoid contact with skin or mouth.

Before starting to work with clinker, apply a barrier creme and reapply it at regular intervals.

Immediately after working with product, workers should wash or shower or use skin moisturisers.

Remove contaminated clothing, footwear, watches, etc. and clean thoroughly before re-using them.

Eye /face protection



Wear approved glasses or safety goggles according to EN 166 when handling dry or wet material to prevent contact with eyes.

Skin protection



Use impervious, abrasion and alkali resistant gloves (made of low soluble Cr (VI) containing material) internally lined with cotton, boots, closed long-sleeved protective clothing as well as skin care products (including barrier creams) to protect the skin from prolonged contact with wet product.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls; Chemical resistant gloves made of any waterproof material, such as polyvinyl chloride, nitrile rubber, or butyl rubber; Shoes plus socks

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Respiratory protection



When a person is potentially exposed to dust levels above exposure limits, use appropriate respiratory protection. The type of respiratory protection should be adapted to the dust level and conform to the relevant EN standard, (e.g. EN 149, EN 140, EN 14387, EN 1827) or national standard.

Thermal hazards

Not applicable.

Protective Measures

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

8.2.3 Environmental exposure controls

Environmental exposure control for the emission of product particles into air has to be in accordance with the available technology and regulations for the emission of general dust particles.

This product is toxic to fish. This product is toxic to: Aquatic invertebrates

No special emission control measures are necessary for the exposure to the terrestrial environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- (a) Appearance: Product is a blue, granular inorganic solid material
- (b) Odour: Odourless
- (c) Odour threshold: no odour threshold, odourless
- (d) pH: (T = 20°C in water, water-solid ratio 1:2): 7.5-9.5
- (e) Melting point: > 1 250 °C
- (f) Initial boiling point and boiling range: Not applicable as under normal atmospheric conditions, melting point >1 250°C
- (g) Flash point: Not applicable as is not a liquid
- (h) Evaporation rate: Not applicable as is not a liquid
- (i) Flammability (solid, gas): Not applicable as is a solid which is non combustible and does not cause or contribute to fire through friction
- (j) Upper/lower flammability or explosive limits: Not applicable as is not a flammable gas
- (k) Vapour pressure: Not applicable
- (l) Vapour density: Not applicable
- (m) Relative density: 2.75-3.20; Apparent density -: 0.53-0.7 g/cm³
- (n) Solubility(ies) in water (T = 20 °C): dispersible
- (o) Partition coefficient: n-octanol/water: Not applicable as material is an inorganic substance
- (p) Auto-ignition temperature: Not applicable (no pyrophoricity – no organo-metallic, organo-metalloid or organo-phosphine bindings or of their derivatives, and no other pyrophoric constituent in the composition)
- (q) Decomposition temperature: Not applicable as no organic peroxide present

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- (r) Viscosity: Not applicable as not a liquid
- (s) Explosive properties: Not applicable. Not explosive or pyrotechnic. Not in itself capable of producing gas by chemical reaction at temperature and pressure and at a speed as to cause damage to the surroundings. Not capable of a self-sustaining exothermic chemical reaction.
- (t) Oxidising properties: Not applicable as does not cause or contribute to the combustion of other materials.

9.2. Other information

Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity

When mixed with water, material will harden into a stable mass that is not reactive in normal environments.

10.2. Chemical stability

Material is stable as long as it is properly stored (see Section 7). It should be kept dry. No incompatibility reasonably foreseeable.

10.3. Possibility of hazardous reactions

Not applicable.

10.4. Conditions to avoid

Humid conditions during storage may cause lump formation and loss of product quality.

10.5. Incompatible materials

None reasonably foreseeable.

10.6. Hazardous decomposition products

Hazardous thermal decomposition products: copper oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Hazard class	Cat	Effect	Reference
Acute toxicity - dermal	-	Limit test, rabbit, 24 hours contact, 2,000 mg/kg body weight – no lethality. Based on available data, the classification criteria are not met.	
Acute toxicity- inhalation	-	No acute toxicity by inhalation observed. Based on available data, the classification criteria are not met	
Acute toxicity - oral	-	Oral LD50 is 1,847 mg/kg	
Skin corrosion/ irritation		No skin irritation, rabbit	
Serious eye damage/irritation		Moderate eye irritation, rabbit	
Skin sensitisation		Animal test did not cause sensitization by skin contact, guinea pig.	
Repeated dose		The following effects occurred at levels of exposure that significantly exceed those expected under labelled usage conditions.	

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		Oral, rat: liver and kidney effects, microcytic anemia Oral feed rat: spleen effects Information given is based on data obtained from similar substances.	
Carcinogenicity		Animal testing did not show any carcinogenic effects; information is based on data obtained with similar substances.	
Mutagenicity		Evidence suggests this substance does not cause genetic damage in cultured bacterial cells or animals	
Reproductive toxicity		Animal testing data from similar substances did not show any effects on fertility.	
Teratogenicity		The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions. Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.	

SECTION 12: Ecological information

12.1. Toxicity

The product is hazardous to the environment.

Copper hydroxide:

72 h ErC50 for *Pseudokirchneriella subcapitata* (green algae) 0.00939 mg/l

21 d NOEC 0.03 mg/l

Environmental Hazards: For Terrestrial Uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. See product label for additional application instructions relating to environmental precautions.

12.2. Persistence and degradability

Not relevant as product is an inorganic material.

12.3. Bioaccumulative potential

Not relevant as product is an inorganic material.

12.4. Mobility in soil

Not relevant as material is an inorganic material.

12.5. Results of PBT and vPvB assessment

Not relevant as material is an inorganic material.

12.6. Other adverse effects

Not relevant.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Cement clinker may always be reused. Waste treatment methods do not apply.
Do not dispose of into sewage systems or surface waters.

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SECTION 14: Transport information

No special precautions are needed apart from those mentioned under Section 8.

14.1. UN number

3077

14.2. UN proper shipping name

Environmentally hazardous substance, solid, n.o.s. (copper hydroxide)

14.3. Transport hazard class(es)

9

14.4. Packing group

III

14.5. Environmental hazards

See label

14.6. Special precautions for user

See label

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not relevant.

SECTION 15: Regulatory information

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

SARA 313 Regulated Chemical(s) : Copper Hydroxide

Title III hazard classification Acute Health Hazard: Yes; Chronic Health Hazard: No; Fire: No; Reactivity/Physical hazard: No; Pressure: No

EPA Reg. No. : 352-662

In the United States this product is regulated by the US Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

California Prop. 65

WARNING! This product contains a chemical or chemicals known to the State of California to cause cancer.

WARNING! This product contains a chemical or chemicals known to the State of California to cause birth defects or other reproductive harm.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

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SECTION 16: Other information

16.1 Indication of changes

N/A

16.2 Abbreviations and acronyms

CAS	Chemical Abstracts Service
CLP	Classification, labelling and packaging (Regulation (EC) No 1272/2008)
DNEL	Derived no-effect level
EC50	Half maximal effective concentration
ECHA	European Chemicals Agency
EINECS	European INventory of Existing Commercial chemical Substances
FF P	Filtering facepiece against particles (disposable)
FM P	Filtering mask against particles with filter cartridge
H&S	Health and Safety
IATA	International Air Transport Association
LC50	Median lethal dose
OEL	Occupational exposure limit
OELV	Occupational exposure limit value
PBT	Persistent, bio-accumulative and toxic
PNEC	Predicted no-effect concentration
PROC	Process category
REACH	Registration, Evaluation and Authorisation of Chemicals
SDS	Safety Data Sheet
STOT	Specific target organ toxicity
TLV-TWA	Threshold Limit Value-Time-Weighted Average
UVCB	Substances of Unknown or Variable composition, Complex reaction products or Biological materials
VLE-MP	Exposure limit value-weighted average in mg by cubic meter of air
vPvB	Very persistent, very bio-accumulative
w/w	Weight by weight

16.3 Key literature references and sources of data

See nanoEHS website tool.

16.4 Training advice

In addition to health, safety and environmental training programs for their workers, companies must ensure that workers read, understand and apply the requirements of this SDS.

16.5 Disclaimer

The information on this data sheet reflects the currently available knowledge and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product, including the use of the product in combination with any other product or any other process, is the responsibility of the user.

It is implicit that the user is responsible for determining appropriate safety measures and for applying the legislation covering his/her own activities.

Additional Disclaimer

Nano-[Cu]-cide is a fictitious product. This mock-SDS was prepared for the purposes of a scrimmage held in Arlington, VA on 6-7 June 2016.