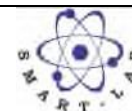


MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

Section 1 - Chemical Product and Company Identification

- 1.1 Product Name** : **COPPER (II) OXIDE**
Synonyms : Copper oxide, Cupric oxide
CAS No. : 1317-38-0
HS Code : 2825 50 00
Chemical Formula : CuO
Molecular Weight : 79.55 g/mol
Product Code : A-2153
Brand : SMART-LAB
- 1.2 Manufacturer** : **PT.Smart-Lab Indonesia**
Address : Ruko Boulevard Taman Tekno Blok E No. 9-11, BSD Serpong, Tangerang - Indonesia
Website : www.smartlabid.com
Email : sales@smartlabid.com
For information : Telp: +62 21- 7588 0205(Hunting), fax: +62-21-7588 0198
Emergency Telephone: +62-21-7588 0205(Hunting)
- 1.3 Application** : General Chemical reagent

Section 2 - Hazards Identification

- 2.1 Classification of the substance or mixture**
Classification according to Regulation (EC) No 1272/2008
 Acute toxicity (oral), Category 4 H302
 Acute aquatic toxicity, Category 1, H400
 Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

warning

Hazard statement(s)

H302 -

Harmful if swallowed

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273

Avoid release to the environment.

P391

Collect spillage.

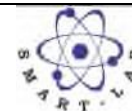
P501

Dispose of contents/ container to an approved waste disposal plant.

Supplemental Hazard Statements

none

MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

2.3 Other hazards

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.

Section 3 - Composition, Information on Ingredients

3.1 Substances

Synonyms : Copper oxide, Cupric oxide
Formula : CuO
Molecular weight : 79.55 g/mol
CAS-No. : 1317-38-0
EC-No. : 215-269-1

3.2 Mixture**Hazardous ingredients according to Regulation (EC) No 1272/2008**

Component	Classification	Concentration
Copper oxide CAS-No. 1317-38-0 EC-No. 215-269-1	Aquatic Acute 1; Aquatic Chronic 3; H400, H412 M-Factor - Aquatic Acute: 10	<=100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section 4 - First Aid Measures

4.1 Description of first aid measures**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

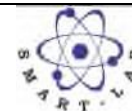
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

Section 5 - Firefighting Measures

MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

5.1 Extinguishing media**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Copper oxides, Not combustible. Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilitiesStorage conditions
Tightly closed. Dry.

Storage class

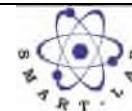
Storage class (TRGS 510): 13: Non Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8 - Exposure Controls, Personal Protection

MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

8.1 Control parameters**8.2 Exposure controls****Appropriat engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment**Eye/face protection**

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740, Size M)

Splash contact

Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740, Size M)

Body Protection

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P1 The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

Section 9 - Physical and Chemical Properties

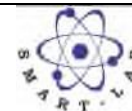
9.1 Information on basic physical and chemical properties

Appearance

Form: powder

Colour: black

MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

Odour	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezingpoint	Melting point/range: 1,336 °C
Initial boiling point and boiling range	No data available.
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	6.320 g/cm ³
Water solubility	0,0001 g/l at 20 °C – Regulation (EC) No. 440/2008, Annex, A.6- insoluble
Partition coefficient: noctanol/water	Not applicable for inorganic substances
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	none

9.2 Other safety information

No data available

Section 10 - Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Risk of explosion with: Aluminum

Violent reactions possible with:

Boron, hydrazine and derivatives, hydroxylamine, sodium, magnesium

Risk of ignition or formation of inflammable gases or vapours with:

hydrogen sulphide, Fluorine, silane, hydrides, Potassium, Acid anhydrides, Hydrogen

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

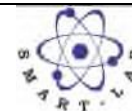
No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

Section 11 - Toxicological Information

MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

11.1 Information on toxicological effects**Acute toxicity**

LD50 Oral - Rat - male - > 2.500 mg/kg (OECD Test Guideline 423)

Symptoms: Possible damages:, Vomiting, Pain, Diarrhea

Symptoms: Irritation symptoms in the respiratory tract.

LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

Respiratory or skin sensitisation

Maximization Test - Guinea pig

Result: negative (OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Copper(II) sulphate

Test Type: unscheduled DNA synthesis assay

Species: Rat

Cell type: Liver cells

Application Route: Oral

Method: OECD Test Guideline 486

Result: negative

Remarks: (in analogy to similar products)

Test Type: Micronucleus

test Species: Mouse Cell type: Red blood cells (erythrocytes)

Application Route:

Oral Method: Directive 67/548/EEC, Annex V, B.12.

Result: negative

Remarks: (in analogy to similar products)

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available(Copper oxide)

Specific target organ toxicity - single exposure

No data available(Copper oxide)

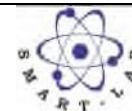
Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available(Copper oxide)

MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

Additional Information

RTECS: GL7900000

Symptoms of systemic copper poisoning may include: capillary damage, heada central nervous system excitation followed by depression, jaundice, convu renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, copper deposition in the cornea as exemplified by humans with Wilson's di lead to hemolytic anemia and accelerates arteriosclerosis., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Copper oxide)

Section 12 - Ecological Information

12.1 Toxicity

Toxicity to fish

flow-through test LC50 - Pimephales promelas (fathead minnow) - 0,193 mg/l - 96 h

Remarks: (ECHA) (in analogy to similar products)

The value is given in analogy to the following substances: Copper(II) sulphate

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 0,011 - 0,039 mg/l - 48 h

Toxicity to algae

static test NOEC - Phaeodactylum tricornutum - 0,0057 mg/l - 72 h (ISO 10253)

Remarks: (in analogy to similar products) (above the solubility limit in the test medium)

The value is given in analogy to the following substances: Copper(II) chloride dihydrate

static test ErC50 - Skeletonema costatum (marine diatom) - 0,0238 mg/l - 72 h (ISO 10253)

Remarks: (in analogy to similar products) (above the solubility limit in the test medium)

The value is given in analogy to the following substances: Copper(II) chloride dihydrate

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available(Copper oxide)

12.5 Results of PBT and vPvB assessment

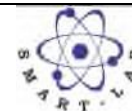
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Section 13 - Disposal Considerations

MATERIAL SAFETY DATA SHEET
According to regulation (EU) no.1907/2006

**COPPER (II) OXIDE**

Revision : 01

Date: July 19th, 2022

MSDS Number : 063

13.1 Waste treatment methods**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chem scrubber.

Contaminated packaging

Dispose of as unused product.

Section 14 - Transport Information

14.1 UN number

ADR/RID: 3077

IMDG: 3077

IATA: 3077

14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper oxide)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper oxide)

IATA: Environmentally hazardous substance, solid, n.o.s. (Copper oxide)

14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA: 9

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: yes

14.6 Special precautions for user**Further information**

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

Section 15 - Regulatory Information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

Section 16 - Additional Information

Full text of H-Statements referred to under sections 2 and 3.

H412 Harmful to aquatic life with long lasting effects
H400 Very toxic to aquatic life.

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

MATERIAL SAFETY DATA SHEET		
According to regulation (EU) no.1907/2006		
COPPER (II) OXIDE		
Revision : 01	Date: July 19 th , 2022	MSDS Number : 063

Revision history :

Date	Rev	Description
Mar 10, 2018	00	-
July 19, 2022	01	thorough revision

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. PT. Smartlab Indonesia shall not be held liable for any damage resulting from handling or from contact with the above product.