

Safety Data Sheet

According to Regulation (EU) No. 1907/2006, Art. 31

CREATED: 31.03.2023
REVISION: 0
VERSION: 1

Copper Powder (Cu-OF, Cu-ETP)

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

1.1 Product Identifier

Copper powder

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

Identified use: Copper powder for use in additive processing (3D printing).

Uses advised against: All other uses are advised against.

1.3 Details of the supplier of the safety data sheet

Supplier cunova GmbH
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 49074 Osnabrück
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1.4 Emergency number

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SECTION 2: Potential hazards

2.1 Classification of the substance or mixture

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

Skin Sens. 1B - Skin sensitisation, hazard category 1B

Repr. 1B - Reproductive toxicity, hazard category 1B

Aquatic Acute 1 - Hazardous to the aquatic environment, hazard category 1

Aquatic Chronic 3 - Hazardous to the aquatic environment with long lasting effects, hazard category 3

H317 - May cause an allergic skin reaction.

H360 - May damage fertility or the unborn child.

H400 - Very toxic to aquatic organisms.

H412 - Harmful to aquatic life with long lasting effects

2.2 Classification of the substance or mixture

Pictograms:



Signal word: Danger

H-Phrases:

H317 - May cause an allergic skin reaction.

H360 - May damage fertility or the unborn child.

H400 - Very toxic to aquatic organisms.

H412 - Harmful to aquatic life with long lasting effects

P-Phrases:

P201 - Obtain special instructions before use.

P391 - Take up spillage.

P501 - Dispose of contents/container to an authorised waste disposal contractor for recycling.

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Hazard-determining components:

Copper, Tellurium, Sulphur, Phosphorus

2.3 Other hazards

The ingredients of the copper alloys do not fulfil the criteria for classification as PBT or vPvB.

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SECTION 3: Composition/information on ingredients

Copper alloys are special preparations according to Regulation (EC) No 1907/2006 (REACH).

3.2 Mixture(s)

Ingredient	Numeric identifier CAS-No. EINECS- No. Index-No.	Concentration	Classification	H-Phrase
Copper	7440-50-8 231-159-6	> 99,9 %	Aquatic Acute 1 Aquatic Chronic 3	H400 H412

Further information

The full text of the H-phrases mentioned here can be found in section 16.

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SECTION 4: First aid measures

4.1 Description of first aid measures

General instructions

First aider: Pay attention to self-protection! In case of exposure or uncertainty: Seek medical advice.

In case of inhalation

Ensure fresh air supply. Seek medical treatment in case of symptoms.

In case of skin contact

IF ON SKIN: Wash with plenty of water and mild soap. In case of skin irritation Consult a doctor.

In case of eye contact

Rinse thoroughly with plenty of water for several minutes and seek medical advice.

If swallowed

Do not induce vomiting unless instructed to do so. In case of symptoms, seek medical refer to medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

Contains tellurium. May cause allergic reactions.

4.3 Information on immediate medical assistance or specialised treatment

No information available.

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SECTION 5: Fire-fighting measures

5.1 Extinguishing agent

Suitable extinguishing agents

Copper alloys in their bulk state are not normally flammable, but fine powders or dusts of the material may pose an additional risk in case of fire. Fight metal fires with sand or a class D fire extinguisher.

Unsuitable extinguishing agents:

Fire extinguishers with a high extinguishing agent output. Water in the form of a full jet and spray mist.

5.2 Special hazards arising from the substance or mixture

In case of fire, copper alloys above 400 ° C can form metal oxides which can cause a dangerous inhalation hazard.

5.3 Advice for firefighters

Firefighters are advised to wear full protective clothing including self-contained breathing apparatus if required.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment. Avoid dust formation. Pay attention to general workplace hygiene.

6.2 Environmental precautions

Avoid release to the environment. Pick up spilled material.

6.3 Methods and material for containment and cleaning up

Pick up spilled material mechanically. Use an explosion-proof Hoover, if fine powders or dusts of the alloys have to be collected.

Alternatively: Wet wipe

6.4 Reference to other sections

For information on safe handling, see section 7.

For information on personal protection, see section 8.

For information on disposal, see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Instructions for safe handling

Wear personal protective equipment. Contaminated work clothing must not be worn outside the workplace and must be washed before reuse. Avoid dust formation. Do not eat, drink or smoke when handling the material. Pay attention to general workplace hygiene.

Avoid dust formation. Keep alloy powder away from flames, hot surfaces and other sources of ignition.

7.2 Conditions for safe storage, including any incompatibilities

No special requirements. Consider environmental conditions.

Storage class according to TRGS 510: LGK 11 - Combustible solids.

7.3 Specific end uses

See section 1.2: Copper powder for use in additive processing (3D printing).

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SECTION 8: Exposure controls/personal protective equipment

8.1 Parameters to be monitored

Parameter	CAS-Nr.	Exposure limits mg/m ³ -ppm	short term Exposure limits mg/m ³ -ppm	Remarks	Source
E-Dust	-	10 mg/m ³	-	Inhalable dust	TRGS 900
A-Dust	-	2,5 mg/m ³	-	Respirable dust	TRGS 900

8.2 Exposure controls and monitoring

Protective and hygienic measures

Observe general workplace hygiene.

Respiratory protection

Use filter mask (type P2 or type P3) if the occupational exposure limits are exceeded.

Hand protection

Depending on handling, protective gloves are recommended.

Eye protection

Chemical-resistant safety goggles to protect against dust.

Additional skin protection

Wear suitable protective clothing depending on how the material is processed.

Limitation and monitoring of environmental exposure

Avoid release into the environment.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Colour:	Copper-red
Physical state:	Solid, particle size 36 - 44 µm
Odour:	Odourless
Odour threshold:	Not applicable.
pH:	Not applicable.
Melting point/freezing point:	1075 °C to 1085 °C
Initial boiling point and boiling range:	Not determined.
Flash point:	Not applicable.
Evaporation rate:	Not applicable.
Flammability (solid, gaseous):	The material is not flammable in solid form. Fine powders can be flammable.
Upper/lower flammability or explosion limits:	Material not flammable or explosive in solid form. Fine powders may form an explosive atmosphere with ambient air. With molten metal explosion hazard due to contact with water.
Vapour pressure:	Not applicable.
Vapour density:	Not applicable.
Relative density:	No data available.
Density:	approx. 8,9 g/cm ³ as solid metal, approx. 4,9 g/cm ³ as alloy powder

Solubility

Solubility (in water): Insoluble

Partition coefficient

n-Octanol/Wasser:

Auto-ignition temperature

Solid:	No data available.
Decomposition temperature:	Not applicable.
Viscosity:	Not applicable.
Explosive properties:	Not explosive in solid form. Explosive properties may change if dusts or powders of the material get into the air.
Oxidising properties:	No oxidising properties.

9.2 Other information

No information available.

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SECTION 10: Stability and reactivity

10.1 Reactivity

The alloys have no known reactivity in their solid form when used under intended conditions of use.

10.2 Chemical stability

The product is stable when used as intended.

10.3 Possibility of hazardous reactions

Contact with incompatible materials will cause a corrosion reaction and uncontrolled heat generation.

10.4 Conditions to avoid

Avoid contact with incompatible materials. Metal oxides may form in extreme heat.

1.5 Incompatible materials

Mercury, ammonia, ammonium chloride, ammonium hydroxide, ammonium nitrate, acetylene, chlorine gas, hydrogen peroxide and various acids.

10.6 Hazardous decomposition products

Various hazardous decomposition products may be formed on contact with incompatible materials. Decomposition products may be formed.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.

Skin corrosion/irritation:

Based on available data, the classification criteria are not met.

Serious eye damage/irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Skin Sens. 1B - Skin sensitisation, hazard category 1B.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Repr. 1B - Reproductive toxicity, hazard category 1B

Specific target organ toxicity - single exposure

Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

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SECTION 12: Environmental information

12.1 Toxicity

No detailed information available. Copper alloys pose a general ecotoxicological risk for the environment.

12.2 Persistence and degradability

Not applicable.

12.3 Bioaccumulative potential

Copper is an essential basic element, it is not accumulated, but only stored by some living organisms for later use.

12.4 Mobility in soil

Copper alloys are practically insoluble in water.

12.5 Results of PBT and vPvB assessment

The ingredients of this mixture do not fulfil the criteria for classification as PBT or vPvB.

12.6 Other adverse effects

No other known adverse effects.

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Copper Alloy (Powder)

SECTION 13: Disposal instructions

13.1 Verfahren der Abfallbehandlung

cunova confirms that both unused alloy powder and the articles made of copper and copper alloys until the end of their life cycle in accordance with Annex II of Directive 75/422/EEC for recovery operation R4 (recycling / recovery of metals) can and should be recycled.

Classification according to the Waste Catalogue Ordinance.

cunova GmbH is authorised to accept and recover waste from copper and copper alloys and recover it, which are categorised according to the following areas of origin:

Origin of waste in agreement with EWC	EWC Waste code	Description
Metal waste	02 01 10	Metal waste
Slags (first and second melting)	10 06 01	Slags (first and second melting)
Other particles and dust	10 06 04	Other particles and dust
Furnace slag	10 10 03	Furnace slag
Particles other than those mentioned in 10 10 11	10 10 11	Particles other than those mentioned in 10 10 11
wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05	11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05
Non-ferrous metal filings & turnings	12 01 03	Non-ferrous metal filings & turnings
Dismantling of old cars	16 01 18	Non-ferrous metals
Metals (including alloys)	17 04 01	Copper, bronze, brass
Waste from the shredding of metal-containing waste	19 10 02	Non-ferrous metal waste
Waste from mechanical processing	19 12 02	Non-ferrous metals

EU Transboundary Waste Shipment Directive

Classification	Waste code	Description
B1 Metals and waste containing metals in solid form	B1010	Copper scrap

You can obtain information on recycling from cunova or a local metal dealer.

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SECTION 14: Transport information

14.1 UN number

UN 3077

14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE; N.O.S. (copper)

14.3 Transport hazard classes

Hazard label:



Dangerous goods class: 9

Hazard number: 90

Classification code: M7

14.4 Packing group

Packaging group: III

14.5 Environmental hazards

Environmentally hazardous ingredients: Copper.

14.6 Special precautions for user

Further information in section 6 and 7.

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

Not applicable.

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SECTION 15: Legal regulations

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

EU regulations

Regulation (EC) No 1907/2006 of the European Parliament and of the Council, REACH.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council, CLP.

Directive 2011/65/EC of the European Parliament and of the Council, ROHS 2.

Delegated Directive (EU) 2015/863, ROHS 3.

Delegated Directive (EU) 2017/2102.

Delegated Directive (EU) 2018/741

For alloys containing lead, the exemption in Annex III applies:

6c) Copper alloy with a lead content of up to 4% (w/w)
(exemption until 21 July 2021).

The products are free from hexavalent chromium (CrVI) and asbestos.

No mercury is used in our alloy composition.

European Agreement concerning the International Carriage of Dangerous Goods by Road (Accord européen relatif au transport international des Marchandises Dangereuses par Route), ADR.

National legislation

Hazardous Substances Ordinance (GefStoffV).

Technical Rules for Hazardous Substances 510 - Storage of hazardous substances in transportable containers: Storage class: LGK 11 - Flammable solids.

Technical Rules for Hazardous Substances 900 - Occupational exposure limits. Ordinance on Installations for the Handling of Substances Hazardous to Water (AwSV)

Classification according to Annex 1: awg - generally hazardous to water.

Waste Catalogue Ordinance (AVV).

15.2 Chemical safety assessment

No chemical safety assessment is required for this material.

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SECTION 16: Other information

Phrase meaning

Flam. Sol. – Flammable solids

Skin Irrit. – Skin Irritation

Skin Sens. – Skin sensitisation

Acute Tox. – Acute toxicity

Repr. – Reproductive toxicity

Aquatic Acute – Hazardous to the aquatic environment

Aquatic Chronic – Hazardous to the aquatic environment with long lasting effects

H228 – Flammable solid.

H315 – Causes skin irritation.

H317 – May cause an allergic skin reaction

H332 – Harmful if inhaled.

H360 – May damage fertility or the unborn child.

H400 – Very toxic to aquatic organisms.

H412 – Harmful to aquatic life with long lasting effects.

H413 – May be harmful to aquatic life with long lasting effects.

Abbreviations

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
CLP	Classification, Labelling and Packaging
EG	Europäische Gemeinschaft
EWC	European Waste Catalogue
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
IMDG	International Maritime Code for Dangerous Goods
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
PBT	Persistent, Bioakkumulativ und Toxisch
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
UN	United Nations
vPvB	Very Persistent and very Bioaccumulative

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Further information

We confirm that the information contained in this document has been checked for completeness, accuracy and current relevance to the best of our knowledge.

It is intended for the safe and proper use of our products.

This information does not guarantee the warranted characteristics of the specific items supplied.

We will inform our customers of any errors that occur in the information contained in this safety data sheet, as well as any changes that we become aware of prior to delivery.

We agree that our information may be used by our customers along the supply chain.