SAFETY DATA SHEET (SDS)

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

Creation date: 2025-Oct-27
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Version: 1.0

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

1.1 Product identifier

Product Name:	Cu10Sn AM 20–63 µm
Grain Size:	20–63 µm
EC No:	231-159-6 (Copper base)
CAS No:	7440-50-8 (Cu), 7440-31-5 (Sn)
REACH Registration No.:	Exempt alloy under REACH Article 2(7)(b)

1.2 Relevant identified uses of the substance and uses advised against
Identified uses:

- Additive manufacturing (Laser Powder Bed Fusion, Binder Jetting, Cold Spray)
- Powder metallurgy
- Electrical and thermal components
- Mold inserts and wear-resistant parts
- Bearings and bushings

Uses advised against:

- All other uses are advised against

1.3 Details of the supplier of the SDS
Company Name: Ultra Metal Powders Sp. z o. o.
Address: Ul. Marsz. Józefa Piłsudskiego 74 lok. 320, 50-020 Wrocław, Poland

Phone: +48 733 500 574
Email of competent person: mateusz.skalon@umpowders.com

1.4 Emergency telephone number
Emergency number: +48 (0) 42 631 47 24 (Poison Information Center, Łódź, Poland)

Available Mon–Fri 8:00–17:00 (CET)

SECTION 2: Hazards identification

2.1 Classification of the substance
Classification according to Regulation (EC) No 1272/2008.

Hazard class	Category	Hazard statement
Skin Sensitisation	1B	H317 – May cause an allergic skin reaction
Aquatic Chronic	3	H412 – Harmful to aquatic life with long lasting effects

2.2 Label elements

Signal word: Danger

Pictograms:

GHS07, GHS09

Hazard statements

H317 – May cause an allergic skin reaction.
H412 – Harmful to aquatic life with long lasting effects.

Precautionary statements

Precautionary statements - prevention

P261 – Avoid breathing dust.
P273 – Avoid release to the environment.

P280 – Wear protective gloves/protective clothing/eye protection.
P302+P352 – If on skin: Wash with plenty of soap and water.
P501 – Dispose of contents/container in accordance with local regulations.

Hazard-determining components:
Copper, Tin

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance: Cu10Sn (Bronze)

Component	CAS No	EC No	Concentration	Classification
Copper	7440-50-8	231-159-6	89–91 wt.%	Aquatic Acute 1 (H400), Aquatic Chronic 3 (H412)
Tin	7440-31-5	231-141-8	9–11 wt.%	Not classified
Phosphorus (trace)	7723-14-0	231-768-7	< 0.05 wt.%	Not classified

Further information
Cu10Sn is a solid alloy and does not meet criteria for classification as hazardous mixture. Individual constituents are bound within the metallic matrix and have limited bioavailability.

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

No information available.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Cu10Sn bronze alloys in their bulk form are not normally flammable.

However, fine powders or dusts may pose a dust explosion or ignition risk when dispersed in air near an ignition source.

Extinguish metal fires using dry sand, graphite powder, or a Class D metal fire extinguisher.

Do not use water or CO_2 directly on the burning powder.

Unsuitable extinguishing media
Do not use water jets or foam. Avoid extinguishers with high-pressure discharge that may spread metallic dust.

5.2 Special hazards arising from the substance

When strongly heated (above ≈ 400–500 °C), Cu10Sn alloys can oxidize and form metal oxides, primarily CuO and SnO_2, which may be hazardous if inhaled.

Combustion or decomposition in confined spaces can produce metal fumes and fine particulates.

5.3 Advice for firefighters

Firefighters should wear full protective clothing and a self-contained breathing apparatus (SCBA) to prevent inhalation of metal fumes.

Cool surrounding containers with water spray from a safe distance if possible, but avoid direct contact with the powder.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (gloves, protective clothing, and respiratory protection if dust is generated).

Avoid inhalation of fine particles and dust formation.

Ensure adequate ventilation and eliminate ignition sources.

Follow general workplace hygiene and dust control practices.

6.2 Environmental precautions

Avoid release to the environment. Pick up spilled material.

6.3 Methods and materials for containment and cleaning up

Collect spilled material mechanically (e.g., by brushing or shoveling) and place it in properly labeled, sealed containers for recycling or disposal.

If fine powders or dusts must be collected, use an explosion-proof vacuum cleaner with HEPA filtration.

Avoid dry sweeping, which may generate airborne dust. Alternatively, wipe with damp cloths to minimize dust generation.

6.4 Reference to other section

For safe handling, see Section 7.

For personal protection, see Section 8.

For disposal considerations, see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Wear suitable personal protective equipment.

Contaminated work clothing should not be worn outside the workplace and must be washed before reuse.

Avoid generation of dust and fine powder clouds. Provide adequate local exhaust ventilation in areas where dust may form.

Do not eat, drink, or smoke while handling the material.

Keep the alloy powder away from heat, sparks, and ignition sources — although Cu10Sn is not self-flammable, fine dusts may ignite if dispersed in air and exposed to strong ignition energy.

Prevent electrostatic discharge when transferring the powder (use grounded equipment). Maintain good industrial hygiene practices.,

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry, cool, well-ventilated area, away from acids, oxidizing agents, and ammonia.

Keep containers tightly closed and labeled.

Avoid exposure to humidity, which may lead to oxidation.

Storage class according to TRGS 510: LGK 11 – Combustible solids (non-flammable in bulk form).

7.3 Specific end uses

See section 1.2.

SECTION 8: Exposure controls/personal protection

8.1 Parameters to be monitored

Parameter	CAS Nr.	Exposure limit (TWA) mg/m³	Short-term Exposure Limit (STEL) mg/m³	Remarks	Source
E-Dust (Inhalable)	7440-50-8	PL: 0.2 mg/m³	–	Inhalable total dust	Polish Regulation on MACs (materion.com, osha.europa.eu, materion.com)
E-Dust (Inhalable)		EU: 1 mg/m³	–	Dust and mist	EU/UK-binding OELs
A-Dust (Respirable)	7440-50-8	PL: 0.2 mg/m³	–	Respirable fraction	Polish Regulation on MACs
		EU Effective: 0.01 mg/m³	–	Respirable; SCOEL advisory	SCOEL recommendation

8.2 Exposure controls

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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property	Value
Appearance	Brownish-golden metallic powder
Physical state	Solid (spherical particles, 20–63 µm)
Odour	Odourless
Melting point	995-1025 °C
Boiling point	Not applicable
Flash point	Not applicable
Flammability	Not flammable as solid
Explosion limits	Not explosive in solid form. Explosive properties may change if dusts or powders of the material get into the air
Vapour pressure	Negligible
Relative density (bulk)	approx. 8,8 g/cm3 as solid metal, powder apparent density approx. 4,6 g/cm^3 as a powder
Solubility in water	Insoluble
Partition coefficient (logKow)	Not applicable
Auto-ignition temperature	Not available
Decomposition temperature	Not applicable

9.2 Other information

No information available

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

10.5 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.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- **Toxicity**: Harmful to aquatic life with long lasting effects (mainly due to copper content).
- **Persistence and degradability:** Metallic alloy, not biodegradable.
- **Bioaccumulative potential:** Low; copper and tin are essential trace elements.
- **Mobility in soil:** Insoluble, binds to sediments.
- **PBT/vPvB assessment:** Not applicable – alloy does not meet PBT/vPvB criteria.
- **Other adverse effects:** None known.

SECTION 12: Ecological 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

Insoluble, binds to soils/sediments

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.

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. Recycling/reclamation of metals and metal compounds.

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. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled

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

Properties of waste which render it hazardous
HP 14 ecotoxic

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. Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1 UN number

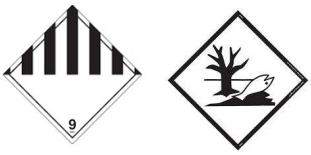
UN 3077

14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (copper-tin alloy)

14.3 Transport hazard classes

Hazard labels:
– Class 9 (Miscellaneous dangerous substances and articles)
– Marine pollutant (environmentally hazardous)



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

Avoid generation of dust during handling and transport. Ensure containers are tightly sealed. Further information in Sections 6 and 7.

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

Not applicable

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 1907/2006 (REACH) — This alloy is a metallic preparation exempt from individual registration in accordance with Article 2(7)(b) (alloys as special preparations).

Regulation (EC) No 1272/2008 (CLP) — Classification based on contained elements (mainly copper).

Directive 2011/65/EU (RoHS 2) and Delegated Directives (EU) 2015/863 (RoHS 3), 2017/2102, 2018/741 — compliant.

For alloys containing lead: exemption 6(c) applies only when Pb ≤ 4 wt %. Cu10Sn (C90500 / CW451K) is lead-free.

Products are free from hexavalent chromium (Cr VI), asbestos, and mercury.

Transport legislation

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR):

UN 3077 – Environmentally hazardous substance, solid, n.o.s. (copper-tin alloy).

National legislation (Poland)

Act on Chemical Substances and Mixtures (Journal of Laws 2011 No. 63, item 322 as amended) – governs classification, labelling, and handling of hazardous substances.

Regulation on the Storage of Hazardous Substances (Journal of Laws 2008 No. 216, item 1368) – storage class: LGK 11 – combustible solids.

Occupational Exposure Limits Regulation (Journal of Laws 2018, item 1286) – typical limits:

Copper (dust): 0.2 mg/m³ (inhalable, PL); 1 mg/m³ (EU).

Tin (metal dust): 2 mg/m³ (PL / EU).

Water Law Act (Journal of Laws 2017, item 1566) – Copper-containing alloys are considered potentially hazardous to water; handling may require permits.

Waste Catalogue Regulation (Journal of Laws 2020, item 10):

12 01 03 – Non-ferrous metal shavings and turnings.

10 08 11 – Dusts and powders containing non-ferrous metals.

15.2 Chemical Safety Assessment

Chemical Safety Assessment has not been carried out for this substance.

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

H317 – May cause an allergic skin reaction.
H412 – Harmful to aquatic life with long lasting effects.

P261 – Avoid breathing dust.
P273 – Avoid release to the environment.
P280 – Wear protective gloves/protective clothing/eye protection.
P302+P352 – If on skin: Wash with plenty of soap and water.
P501 – Dispose of contents/container in accordance with local regulations

Disclaimer:

The information in this SDS is believed to be accurate at the date of issue. 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.
It is the user's responsibility to ensure suitability for their application.