# SAFETY DATA SHEET (SDS)

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

**Creation date:** 2025-Oct-01
**Date of issue:** 2025-Oct-01
**Version:** 1.0

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

### 1.1 Product identifier

| | |
|---|---|
| **Product Name:** | Pure Copper HVOF 20–45 µm |
| **Grain Size:** | 20–45 µm |
| **EC No:** | 231-159-6 |
| **CAS No:** | 7440-50-8 |
| **REACH Registration No.:** | 01-2119480154-42-xxxx |

### 1.2 Relevant identified uses of the substance and uses advised against

**Identified uses:**

- Thermal Spray Coatings
- Powder metallurgy

**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.

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 Label elements

**Signal word:** Danger

**Pictograms:**

GHS02, GHS09

**Hazard statements**

H228 Flammable solid

H410 Very toxic to aquatic life with long lasting effects

**Precautionary statements**

**Precautionary statements - prevention**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P273 Avoid release to the environment

**Precautionary statements - response**

P370+P378 In case of fire: Use metal fire powder to extinguish - never use water

**Labelling of packages where the contents do not exceed 4000 ml**

Pictograms:

Signal word: **Warning**

**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, Phosphorus

**2.3 Other hazards**

The ingredients of the copper alloys do not fulfil the criteria for classification as PBT or vPvB.
Copper alloys are special preparations according to Regulation (EC) No 1907/2006 (REACH)

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

| | |
|---|---|
| Name of substance | Copper powder |
| Molecular formula | Cu |
| Molar mass | 63,55 g /mol |
| REACH Reg. No | 01-2119480154-42-xxxx |
| CAS No | 7440-50-8 |
| EC No | 231-159-6 |
| Index No | 029-026-00-0 |
| Concentration | >99.8% |
| Classification | Aquatic Acute 1 H400, Aquatic Chronic 3 H412 |

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

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

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**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**
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 media**
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

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.

## 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 materials 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

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

### 6.4 Reference to other section

For information on safe handling, see section 7.
For information on personal protection, see section 8.
For information on disposal, see section 13

## SECTION 7: Handling and storage

### 7.1 Precautions 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).

## 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 | Reddish-brown metallic powder |
| Physical state | Solid, particles 38-90 µm |
| Odour | Odourless |
| Odour threshold | Not applicable |
| pH (in water) | Not applicable |
| Melting point | ~1085 °C |
| Boiling point | ~2560 °C |
| 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. 8,9 g/cm3 as solid metal, approx. 4,8 g/cm3 as alloy powder |
| Solubility in water | Insoluble |
| Partition coefficient (logKow) | Not applicable |
| Auto-ignition temperature | Not available |

| Property | Value |
| --- | --- |
| 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**

- **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
- **STOT (single/repeated):** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

### 12.1 Toxicity

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

### 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 3** flammable
**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

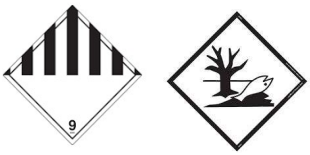
UN 3077

### 14.2 UN proper shipping name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE; 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

## SECTION 15: Regulatory information

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

**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**

- Act on Chemical Substances and Mixtures (Ustawa o substancjach chemicznych i ich mieszaninach)
  Main national regulation governing the classification, labeling, and handling of hazardous substances, including copper powder.
  Reference: *Journal of Laws 2011 No. 63, item 322, as amended.*
- Regulation on the Storage of Hazardous Substances
  Storage requirements for hazardous materials, including flammable solids, are defined under:
  Regulation of the Minister of Economy of 21 November 2008 on the storage requirements for hazardous substances.
  Reference: *Journal of Laws 2008 No. 216, item 1368.*
  Storage class equivalent: LGK 11 – Flammable solids.
- Occupational Exposure Limits Regulation
  Covers the maximum allowable concentrations of hazardous substances in the workplace atmosphere.
  Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the maximum allowable concentrations and intensities of harmful factors in the work environment.
  Reference: *Journal of Laws 2018, item 1286.*
  Copper dust (respirable): typically 0.01 mg/m³ (may vary depending on form).
- Water Law Act (Prawo wodne)
  National regulation concerning substances hazardous to water. Copper is considered a substance potentially hazardous to water, and its handling may require permits.
  Reference: *Act of 20 July 2017 – Journal of Laws 2017, item 1566, as*

*amended.*
Classification: *Generally hazardous to water.*

- Waste Catalogue Regulation
  Defines waste codes and classification. Copper-containing waste (e.g., from powder residues or production processes) may be classified under:
  – *12 01 03* – Non-ferrous metal shavings and turnings
  – *10 08 11* – Dusts and powders containing non-ferrous metals
  Reference: *Regulation of the Minister of Climate of 2 January 2020 on the waste catalogue – Journal of Laws 2020, item 10.*

**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

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.

**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.