



# SAFETY DATA SHEET



## JSC "Uralelectromed"

### 1. IDENTIFICATION OF THE SUBSTANCE\PREPARATION AND OF THE COMPANY\UNDERTAKING

<b>Identification of the substance/preparation</b>	Copper (min. 99.5 %)
<b>Trade name</b>	Copper electrolytic powder, grades PM, PMS-1, PMS-A, PMS-B, SA, SB, SC, SD, SE, SF, S, GS
<b>Use of the substance/preparation</b>	Manufacturing of parts and articles by method of powder metallurgy; use in electrical-engineering, instrument making, automotive, aviation, machine-building and chemical industries, for production of copper oxide, copper dioxide, and copper salts.
<b>Version No.</b>	01/2
<b>Revision date</b>	28-December-2009
<b>SDS Number</b>	PB-00194429-002-2009
<b>Manufacturer/Supplier</b>	JSC "Uralelectromed" 1, Lenin Str., Verkhnyaya Pyshma, 624091 Sverdlovsk region, Russia Tel. +7 34368 47199, +7 34368 46193; fax: +7 34368 46039 Contact person: Elena Kapustina Email: <a href="mailto:reach@ugmk.com">reach@ugmk.com</a> ; <a href="mailto:e.kapustina@ugmk.com">e.kapustina@ugmk.com</a> <a href="http://www.elem.ru">http: www.elem.ru</a>
<b>Emergency Only representative</b>	Emergency phone (Access code): +7 34368 47199 Halma Export & Import GmbH Reichstratsstrasse 11/3A A-1010 Vienna Austria Phone: +43 (0) 1 533 56 80 Fax: +43 (0) 1 533 56 80 30 Contact: Dr. Bernhard Goetsch e-mail: <a href="mailto:bernhard.goetsch@halma.co.at">bernhard.goetsch@halma.co.at</a>

### 2. HAZARDS IDENTIFICATION

This substance is not classified as dangerous according to Directive 67/548/EEC

<b>Physical hazards</b>	Not classified as a physical hazard.
<b>Health hazards</b>	Classified as a health hazard - by inhalation, skin and eye contact and internally (by ingestion).
<b>Environmental hazards</b>	Not classified as an environment hazard.
<b>Specific hazards</b>	This product (copper powder) is considered to present high human exposure. It may be irritating to eyes, mucous membranes and respiratory tract, causes acute and chronic poisoning. The symptoms are shivering, fever, malaise and muscular pain. The effects might be delayed. Long-term exposure to copper may cause anaemia. Prolonged skin contact may cause dermatitis. Molten copper may cause thermal burn. High concentrations of dust may form explosive mixture with air.
<b>Main symptoms</b>	Irritation of nose and throat. Irritation of eyes and mucous membranes

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS #	Percent	EC-No.	Classification
Copper	7440-50-8	minimum 99.5	231-159-6	R: 36/37/38 S: 24/25-36

**Composition comments** All concentrations are in percent by weight. For more detailed chemical composition, refer to the certificate of analysis.

\*) Decoding of hazard symbols is given in Section 16.

#### 4. FIRST-AID MEASURES

<b>Inhalation</b>	In case of exposure to fumes or particulates: Move to fresh air. Get medical attention if discomfort persists.
<b>Skin contact</b>	Get off dirty clothes. Wash skin with soap and water. Get medical attention if irritation develops or persists. In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.
<b>Eye contact</b>	Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.
<b>Ingestion</b>	Rinse mouth thoroughly if dust is ingested. Do not induce vomiting. Get medical attention if any discomfort continues.
<b>General advice</b>	Get medical attention if any discomfort develops. Seek medical attention for all burns, regardless how minor they may seem. Show this safety data sheet to the doctor in attendance.
<b>Notes to physician</b>	Treat symptomatically. The effects might be delayed

#### 5. FIRE-FIGHTING MEASURES

<b>Suitable extinguishing media</b>	Special powder against metal fires. Dry sand.
<b>Extinguishing media which must not be used for safety reasons</b>	Do not use water or halogenated extinguishing media
<b>Unusual fire &amp; explosion hazards</b>	Powder may form an explosive mixture with air . Do not use water on molten metal: explosion hazard could result.
<b>Specific hazards</b>	Fire or high temperatures create: metal oxides.
<b>Special protective equipment for fire-fighters</b>	Self-contained breathing apparatus and full protective clothing .
<b>Fire fighting equipment/instructions</b>	Move container from fire area if it can be done without risk. Use a special-purpose equipment

#### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.
<b>Environmental precautions</b>	Avoid release to the environment.
<b>Methods for cleaning up</b>	Scrape up spilled material with shovels into a suitable container for recycle or disposal. Collect dust or particulates using a vacuum cleaner with a HEPA filter.

#### 7. HANDLING AND STORAGE

**Handling** Provide adequate ventilation. Use appropriate tools and package materials;

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explosion-proof equipment and artificial light attachments. Avoid contact with molten material. Do not use water on molten metal. Avoid contact with sharp edges and hot surfaces. Avoid generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

**Storage** Keep dry in supplier's package at temperature not more than +25°C. Store away from incompatible materials. Avoid wetness and moisture.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure limit values

#### United Kingdom

Components	Type	Value	Form
Copper (7440-50-8)	STEL	2 mg/m <sup>3</sup>	Inhalable dusts.
	TWA	1 mg/m <sup>3</sup>	Inhalable dusts.
		0.2 mg/m <sup>3</sup>	Fume.

**Exposure controls** Use process enclosures, local exhaust ventilation, or other exposure level control devices to maintain concentration in air below recommended exposure limits.

**Occupational exposure controls** In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2). Seek advice from local supervisor.

#### Respiratory protection

#### Hand protection

Wear suitable protective gloves to prevent cuts and abrasions; against fine dust use protective hydrophobic ointment, paste and cream. Apply cleansers and personal towels to remove ointment. When material is heated, wear gloves to protect against thermal burns. Suitable gloves can be recommended by the glove supplier.

#### Eye protection

Wear dust-resistant safety goggles where there is danger of eye contact.

#### Skin and body protection

##### General

Wear suitable protective clothing. Use personal protective equipment when required. Select personal protective equipment according to the CEN standards; discuss protective equipment with the supplier.

#### Environmental exposure controls

Contain spills and prevent releases. Observe national regulations on emissions.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practices. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Massive, solid metal.
<b>Physical state</b>	Solid (fine dispersed powder)
<b>Form</b>	Powder particles of dendritic shape
<b>Colour</b>	Red brown.
<b>Odour</b>	Odourless.
<b>Odour threshold</b>	Not applicable.
<b>pH</b>	Not applicable
<b>Boiling point</b>	2540 °C – 2595 °C
<b>Flash point</b>	Not available.
<b>Flammability</b>	Not available.
<b>Vapour pressure</b>	Not available.
<b>Apparent density</b>	1.25 – 3.5 g/cm <sup>3</sup> (depending on the grade)
<b>Specific area of particles</b>	1000-1700 cm <sup>2</sup> /g
<b>Electrical resistivity</b>	Maximum 20x10 <sup>-6</sup> Ohm-m
<b>Solubility (water)</b>	Insoluble
<b>Partition coefficient (n-octano/water)</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Vapour density</b>	Not available.
<b>Evaporation rate</b>	Not available

<b>Melting point</b>	1083°C (1981.4°F)
<b>Freezing point</b>	Not available.
<b>Auto-ignition temperature</b>	Aerogel 270 °C, aerosuspension 700 °C
<b>VOC</b>	0%
<b>Bulk density</b>	Not available.
<b>Percent volatile</b>	Not available.

## 10. STABILITY AND REACTIVITY

<b>Conditions to avoid</b>	Contact with incompatible materials. Contact with acids will release flammable hydrogen gas.
<b>Hazardous decomposition products</b>	Not applicable.
<b>Stability</b>	Copper powder is stable and non-reactive under normal conditions of use, storage and transport.
<b>Materials to avoid</b>	Acids. Alkalis. Halogens. May oxidize. Interacts with sulfur, hydrogen sulfide, selenium, ammonia; forms complex salts.
<b>Hazardous polymerisation</b>	Hazardous polymerisation does not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>Acute toxicity</b>	Inhalation of powder or fumes may cause acute and chronic poisoning with various clinical symptoms. DL <sub>50</sub> 1500 mg/kg, guinea-pigs CL <sub>50</sub> (800-960) mg/m <sup>3</sup> , rabbits
<b>Routes of exposure</b>	Inhalation. Skin contact.
<b>Chronic toxicity</b>	Prolonged inhalation may be harmful. Long-term exposure to copper may cause anemia. Dust irritates eyes and causes cornea ulceration.
<b>Sensitization</b>	No test data available for the product.
<b>Carcinogenicity</b>	IARC not listed.
<b>Mutagenicity</b>	No test data available for the product.
<b>Reproductivity</b>	Possible reproductive hazard.
<b>Epidemiology</b>	Based on epidemiological studies, pre-existing pulmonary disorders may be aggravated by prolonged exposure to high concentrations of metal dust or fumes.
<b>Local effects</b>	May cause irritation through mechanical abrasion. Prolonged skin contact may cause dermatitis.
<b>Further information</b>	Overexposure may result in nasal septum irritation and ulceration, disturbance of nervous and bronchopulmonary systems, disturbance of liver, kidneys and other viscera.

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Copper powder presents a limited hazard for the environment.
<b>Environmental effects</b>	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
<b>Persistence and degradability</b>	The product is not biodegradable.

<b>Bioaccumulation</b>	The product is not bioaccumulating.
<b>Aquatic toxicity</b>	If copper powder presents in water basins, it destructively affects fish, plankton and water weed; changes organoleptic properties of water; prevents water self-purification; is cumulated by soil and plants.
<b>Mobility</b>	Copper powder oxidizes under influence of the environment.

### 13. DISPOSAL CONSIDERATIONS

**Disposal instructions** Dispose in accordance with applicable regulations. EWC code 06 04 05.

### 14. TRANSPORT INFORMATION

<b>ADR</b>	Not regulated as dangerous goods
<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.

### 15. REGULATORY INFORMATION

**Labeling**



**Contains** Electrolytic copper powder, grade (in accordance with the contract)

**EC Number** 231-159-6

**Regulatory information** This Safety Data Sheet complies with the requirements of Regulation (EC) № 1907/2006.

### 16. OTHER INFORMATION

**Disclaimer** This Safety Data Sheet is specifically designed to comply with the requirements of the EU Regulation called REACH – Registration, Evaluation and Authorization of Chemicals (EC № 1907/2006 of the European Parliament and of the Council of 18 December 2006) and the corresponding country law, and may not comply with the requirements of any other regulations for safe product handling.

**Risk and safety codes and phrases** R: 36/37/38 – irritating to eyes, irritating to respiratory system, irritating to skin  
S: 24/25-36 – avoid contact with skin, avoid contact with eyes, wear suitable protective clothing

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