



SAFETY DATA SHEET



JSC "Uralelectromed"

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

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| Identification of the substance/preparation | Copper (min.99.99 %). |
| Trade name | Copper cathodes. Grade MOOK. |
| Use of the substance/preparation | Manufacturing of castings and deformed parts from copper and copper alloys. |
| Version No. | 01/2 |
| Revision date | 23-December-2009 |
| SDS Number | PB-00194429-001-2009 |
| Manufacturer/Supplier | JSC "Uralelectromed" 1, Lenin Str., Verkhnyaya Pyshma, Sverdlovsk region, Russia, 624091 Tel. +7 343 6847199, +7 34368 46193; Fax: +7 343 6846039 Contact person: Elena Kapustina Email: reach@ugmk.com , e.kapustina@ugmk.com http: www.elem.ru |
| Emergency | Emergency phone (Access code): +7 34368 47199 |
| Only representative | 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: bernhard.goetsch@halma.co.at |

2. HAZARDS IDENTIFICATION

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

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|------------------------------|---|
| Physical hazards | Not classified as a physical hazard |
| Health hazards | Not classified as a health hazard. |
| Environmental hazards | Not classified as an environmental hazard. |
| Specific hazards | In its manufactured and shipped state, this product (copper cathode) is considered to present low hazard. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to eyes, mucous membranes and respiratory tract. Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. 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. Mechanical processing may generate dust. High concentrations of dust may form explosive mixture with air. |
| Main symptoms | 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 99.99 | 231-159-6 | |

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

4. FIRST-AID MEASURES

Inhalation In case of exposure to fumes or metallic particles: Move to fresh air. Get medical attention if discomfort persists.

Skin contact 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.

Eye contact 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.

Ingestion Rinse mouth thoroughly if dust is ingested. Do not induce vomiting. Get medical attention if any discomfort continues.

General advice 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.

Notes to physician Treat symptomatically. The effects might be delayed

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media Special powder against metal fires. Dry sand.

Extinguishing media which must not be used for safety reasons Do not use water or halogenated extinguishing media

Unusual fire & explosion hazards Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air. Do not use water on molten metal: explosion hazard could result.

Specific hazards Fire or high temperatures create: metal oxides.

Special protective equipment for fire-fighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Move container from fire area if it can be done without risk. Use a special-purpose equipment

6. ACCIDENTAL RELEASE MEASURES

Personal precautions 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.

Environmental precautions Avoid release to the environment. Must never be put to drain.

Methods for cleaning up Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Collect dust or particles using a vacuum cleaner with a HEPA filter.

7. HANDLING AND STORAGE

PB-00194429-001-2009 COPPER CATHODES

Version: 01/2

Revision date: 23-December-2009

Issue date: 25-December-2009

Handling Provide adequate ventilation. Use appropriate tools and explosion-proof equipment if high dust/air concentrations. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts. 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. Store away from incompatible materials

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Exposure controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels 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. 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. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining

Skin and body protection Wear suitable protective clothing

General Use personal protective equipment when required. Select personal protective equipment according to the CEN standards; consult supplier on protective equipment.

Environmental exposure controls Contain spills and prevent releases and 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 NAD CHEMICAL PROPERTIES

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| Appearance | Massive, solid metal. |
| Physical state | Solid. |
| Form | Solid forms such as: sheets of size, mm ~ (1000x900x(8÷15)). |
| Colour | Red brown. |
| Odour | Odourless. |
| Odour threshold | Not applicable. |
| pH | Not applicable |
| Boiling point | 2540 °C |
| Flash point | Not available. |
| Flammability | Not available. |
| Vapour pressure | Not available. |
| Relative density | 8,9 |
| Solubility (water) | Insoluble |
| Partition coefficient (n-octano/water) | Not available. |
| Viscosity | Not available. |
| Vapour density | Not available. |
| Evaporation rate | Not available |

| | |
|----------------------------------|-------------------|
| Melting point | 1083°C (1981.4°F) |
| Freezing point | Not available. |
| Auto-ignition temperature | Not available. |
| VOC | 0% |
| Percent volatile | Not available. |

10. STABILITY AND REACTIVITY

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| Conditions to avoid | Contact with incompatible materials. Contact with acids will release flammable hydrogen gas. |
| Hazardous decomposition products | Welding, burning, sawing, brazing, grinding or machining operations may generate dusts and fumes of metal oxides. |
| Stability | Massive metal is stable and non-reactive under normal conditions of use, storage and transport. |
| Materials to avoid | Strong oxidising agents. Strong acids. Acid chlorides. Ammonium nitrate. Halogens. Azides. Acetylene. |
| Hazardous polymerisation | Hazardous polymerisation does not occur. |

11. TOXICOLOGICAL INFORMATION

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| Acute toxicity | Inhalation of powder or fumes may cause metal fume fever. DL ₅₀ 1500 mg/kg internally, guinea pigs CL ₅₀ (800-960) mg/m ³ , rabbits |
| Routes of exposure | Inhalation. Skin contact. |
| Chronic toxicity | Prolonged inhalation may be harmful. Long-term exposure to copper may cause anemia. |
| Sensitization | No test data available for the product. |
| Carcinogenicity | IARC not listed. |
| Mutagenicity | No test data available for the product. |
| Reproductivity | Possible reproductive hazard. |
| Epidemiology | Based on epidemiological studies, pre-existing pulmonary disorders may be aggravated by prolonged exposure to high concentrations of metal dust or fumes. |
| Local effects | May cause irritation through mechanical abrasion. Prolonged skin contact may cause dermatitis. |
| Further information | Welding or plasma arc cutting of metal and alloys can generate ozone, nitric oxides and ultraviolet radiation. Overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and welders flash. |

12. ECOLOGICAL INFORMATION

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| Ecotoxicity | Cathode copper presents a limited hazard for the environment. |
| Environmental effects | An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. |
| Persistence and degradability | The product is not biodegradable. |
| Bioaccumulation | The product is not bioaccumulating. |
| Aquatic toxicity | Not expected to be harmful to aquatic organisms. |
| Mobility | Metal cathodes are not mobile in the environment. |

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

ADR Not regulated as dangerous goods
IATA Not regulated as dangerous goods.
IMDG Not regulated as dangerous goods.

15. REGULATORY INFORMATION

Labeling -
Contains Copper cathodes, M00k grade
EC Number 231-159-6
Regulatory information The product does not need to be labeled in accordance with EC directives or respective national laws. 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.
Issue date 23-December-2009