



SAFETY DATA SHEET



JSC "Uralelectromed"

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

Identification of the substance/preparation	Copper sulfate (copper, min. 24.94%)
Trade name	Copper sulfate (Copper sulfate pentahydrate) Grade A
Use of the substance/preparation	For manufacturing of synthetic fibres, organic coloring agents, mineral paints, arsenical chemicals, for ore dressing during flotation.
Version No.	01/2
Revision date	30-December-2009
SDS Number	PB-00194429-003-2009
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2. HAZARDS IDENTIFICATION

This substance is classified as dangerous according to Directive 67/548/EEC

Physical hazards	Not classified as a physical hazard.
Health hazards	Classified as a health hazard - by inhalation, skin and eye contact and internally (by ingestion).
Environmental hazards	Classified as an environment hazard due to infringement of handling rules, uncontrolled waste disposal, land disposal and discharge in water as the result of emergency.
Specific hazards	This product (copper sulfur) is considered to present high human exposure. It may cause acute and chronic poisoning. It exposes mainly on liver and causes blood changes. It may lead to functional nervous system disorder and lung capacity decrease.
Main symptoms	Irritation of mucous membranes of upper respiratory tracts and gastrointestinal tract.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS #	Percent	EC-No.	Classification
Copper sulfate	7758-98-7	minimum 24.94 (copper)	231-847-6	X _n ; R22 X _i ; R36/38 N: R50-53

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

Inhalation	Move to fresh air. Get off tight clothes. Rinse mouth with water. 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.
Eye contact	Flush eyes thoroughly with running water. If discomfort continues, consult a physician.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting. Get medical attention if any discomfort continues.
General advice	Get medical attention if any discomfort develops. 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	Depending on the main source of ignition.
Extinguishing media which must not be used for safety reasons	Depending on the main source of ignition.
Unusual fire & explosion hazards	Copper sulfate is not combustible and fire- and explosion proof.
Specific hazards	Package can be involved into fire that may lead to the product heating and crystallization water loss and generation of water-free copper sulfate. Further decomposition is possible if high temperatures.
Special protective equipment for fire-fighters	Personal protection equipment depending on the main source of ignition.
Fire fighting equipment/instructions	Move container from fire area if it can be done without risk. Use special-purpose equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Ensure adequate ventilation. Avoid inhalation of dust and spray, 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.
Methods for cleaning up	Scrape up spilled material into a suitable leakproof container for recycle or disposal. Collect dust or particulates using a vacuum cleaner with a HEPA filter. Must never be put into drain.

7. HANDLING AND STORAGE

Handling	Provide adequate ventilation. Use sealed equipment and package materials. Avoid spills, generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Wear appropriate personal protective equipment.
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Storage Keep dry in supplier's package and away from incompatible materials. Avoid direct sunbeams, wetness, dirtiness and package damage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

No data on exposure limit values for copper sulfate.

Exposure limit values for copper:

United Kingdom

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

Exposure controls Use local exhaust ventilation, sealed equipment and package or other exposure level control devices to maintain concentration in air below recommended exposure limits.

Occupational exposure controls

Respiratory protection 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.

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. Suitable gloves can be recommended by the glove supplier.

Eye protection

Wear dust-resistant safety goggles where there is a 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

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

Hygiene measures

Store and 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

Appearance	Crystalline powder
Physical state	Solid
Form	Triclinic crystal
Colour	Green blue
Odour	Odourless
Odour threshold	Not applicable
pH	Not applicable
Boiling point	650 °C
Dehydration point	105°C - 250°C
Flash point	Not available
Flammability	Not available
Vapour pressure	Not available
Density	2.28 g/cm ³
Specific area of particles	Not available
Electrical resistivity	Not available
Solubility (water)	Well soluble: 317 g/l at 20° C 2033 g/l at 100° C
Partition coefficient (n-octano/water)	Not available
Viscosity	Not available
Vapour density	Not available
Evaporation rate	Not available

Melting point	95.88° C-105° C
Freezing point	Not available
Auto-ignition temperature	Not available
VOC	Not available
Bulk density	Not available
Percent volatile	Not available

10. STABILITY AND REACTIVITY

Conditions to avoid	Contact with incompatible materials.
Hazardous decomposition products	Not applicable.
Stability	Copper sulfate is stable under normal conditions of use, storage and transport.
Materials to avoid	Acids. Alkalis. Organic substances. Interacts with ammonia; forms complex salts.
Hazardous polymerisation	Not applicable.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	Inhalation of dust may cause acute and chronic poisoning with various clinical symptoms.
Routes of exposure	Inhalation. Skin contact. Eye contact. Ingestion.
Chronic toxicity	Prolonged inhalation may be harmful. Long-term exposure to copper sulfate may cause cornea and nasal septum ulceration . Dark red border is formed on gums.
Sensitization	Sensitizing.
Carcinogenicity	IARC not listed.
Mutagenicity	Mutagenic.
Reproductivity	Possible reproductive hazard.
Epidemiology	Based on epidemiological studies, main exposure symptom is acute blood hemolysis (red haematocytes destruction and gemoglobin release to liquid part of blood), metgemoglobinemia, bilirubinemia and fatal outcome are possible.
Local effects	May cause irritation on skin, upper respiratory tract and eye mucous membrane.
Further information	Prolonged contact with copper sulfate may result in nasal septum irritation and ulceration, exposing mainly on blood, liver and other viscera.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Copper sulfate is hazardous for the environment. It may pollute atmosphere. If it presents in water basins, it destructively affects their dwellers.
Ecotoxicity factors:	Acute ecotoxicity factors: 96 hr LC ₅₀ (for fish) ≤ 1mg/l; 96 hr EC ₅₀ (for Daphnia) ≤ 1mg/l. IC ₅₀ (for algae) 1 mg/l < IC ₅₀ ≤ 10 mg/l.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence	and The product is not degradable if stored correctly.

degradability

Bioaccumulation The product is not bioaccumulating.

Aquatic toxicity If copper sulfate 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; delays or completely stops plants growth.

Mobility Copper sulfate is not changeable in the environment. It is highly stable within abiotic environment.

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

ADR No. UN-3077- environment hazard.

IATA Not regulated as dangerous goods.

IMDG Copper sulfate is sea pollutant. Emergency cards F-A S-F if transported by sea.

SMGS(Agreement on International Goods Transport by Rail Road) Hazard code - 90-other dangerous and hazardous substances, number in Table - 12c) Emergency card No. 906 if transported by rail.

15. REGULATORY INFORMATION

Labeling



X_n, N; R:22-36/38-50/53; S:22-60-61
Signal word "Warning"

Contains Copper sulfate, grade A

EC Number 231-847-6

Regulatory information This Safety Data Sheet complies with the requirements of Regulation (EC) № 1907/2006 and Directive 67/548-EEC.

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 X_n – hazardous substance (inhalation, ingestion or skin adsorption may cause chronic diseases)
X_i - irritant
N- environment hazard substance
R: 22-36/38-50/53 – harmful if swallowed, irritating to eyes and skin; very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
S: 22-60-61 – when using do not eat and drink; this material and its container must be disposed of as hazardous waste; avoid release to the environment, refer to special instructions/Safety Data Sheet.

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