Material Safety Data Sheet
Copper Powder

Edition: 07/02/2019

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1) Identification of substance/preparation and of the company undertaking

Material	Copper powder
Product form:	Substance
CAS No	7440-50-8
EINECS number:	231-159-6
REACH Registration No	01-2119480154-42-XXXX
Company	Inoxia Ltd 45.7 Dunsfold Park Stovolds Hill Cranleigh Surrey GU6 8TB Tel: 02032 909990 safety@inoxia.co.uk www.inoxia.co.uk

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/preparation:
Carbon brush, Sintered Friction Products, Self Lubricating Bearings, P/M parts, Additive, Paints and Allied Products.

For information in respect of other identified uses contact the supplier.

Uses advised against

None identified.

2) Hazards identification.

2.1 Classification of the substance

2.1.1 Classification according to Regulation (EC) No. 1272/2008

Aquatic Acute 1 Hazard statement: H400: Very toxic to aquatic life.
Aquatic Chronic 3 Hazard statement: H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008 (CLP)

The substance is classified and labelled according to the CLP regulation.

Product Name: Copper Powder.
Hazard pictogram:
GHS09
Signal word: Warning
Hazard statement: H400: Very toxic to aquatic life.

Hazard Statement: H412: Harmful to aquatic life with long lasting effects.
Precautionary statements:
P273: Avoid release to the environment.
P391: Collect spillage.
P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other Hazards:
None known.

3) Composition/information on ingredient

3.1. Substances

EC Classification Regulation (EC) No 1272/2008 (CLP)

Chemical Identity of the Substance:	Copper
W/W:	>97.5
Cas No:	7440-50-8
EC No:	231-159-6
Reach Registration No:	01-2119480154-42-XXXX

4) First Aid Measures

4.1 Description of first aid measures:

Self-protection of the first aider:
Wear appropriate personal protective equipment, avoid direct contact.

Following inhalation:
Remove from exposure. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical advice/attention if you feel unwell.

Following skin contact:
IF ON SKIN: Wash skin with water. If irritation (redness, rash, blistering) develops, get medical attention.

Following eye contact:
IF IN EYES: If substance has got into the eyes, immediately wash out with plenty of water for at least10 minutes. Get medical attention if eye irritation develops or persists.

Following ingestion:
IF SWALLOWED: Give 200-300mls water to drink. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs.
Get medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed:
Inhalation of large quantities of fine powder: Metal-fume fever, fever, nausea, headache.

4.3 Indication of any immediate medical attention and special treatment needed:
Treat symptomatically.

5) Fire Fighting

5.1. Extinguishing media

Suitable extinguishing media:

Small scale: In case of fire, use water spray, foam, dry powder or CO2 for extinction. Contain spillage with sand, earth or any suitable adsorbent material.

Large scale: In case of fire, use foam, water spray, or fog to extinguish.

Unsuitable extinguishing media: Do not use water jet. Direct water may spread the fire. Do not use halogenated agents.

5.2. Special hazards arising from the substance or mixture

Material is non-flammable. May decompose in a fire giving off toxic fumes. Decomposition products: Carbon monoxide, Carbon dioxide, metal oxides.

5.3. Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Avoid all contact. Where practicable, avoid run-off from firefighting to enter drains or water courses.

6) Accidental Release

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid all contact. Ensure suitable personal protection during removal of spillage. Avoid dust generation. Remove ignition sources. Evacuate area keep personnel upwind.

6.2. Environmental precautions

Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into soil must be alerted to the appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Contain spillage. Control dust formation. Use vacuum equipment for collecting spilt materials, where practicable. A vacuum equipped with HEPA filtration is recommended. If sweeping. Damp down to avoid dust generation. Transfer to a lidded container for disposal or recovery.

6.4. Reference to other sections

See section 8 and 13 for more information.

7) Handling/Storage

7.1. Precautions for safe handling

Use personal protective equipment as required. Control dust formation. Avoid inhalation of dusts. Ensure adequate ventilation. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned. Opened containers should be carefully resealed and stored in an upright position.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original container/package in a cool well-ventilated place. Do not store in unlabelled containers. Opened containers should be carefully resealed and stored in an upright position. Keep

away from food, drinks and animal food. Keep away from incompatible materials. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid contact with moisture.
Storage temperature: Ambient temperatures.
Storage life: 6 months from date of despatch.
Incompatible materials: Mineral acids.

8) Exposure Controls/Personal Protection

8.1 Control parameters

8.1.1 Occupational Exposure limit values:

Short term value: 2mg/m3 (dusts and mists)
Long term value: 0.2mg/m3 (fume), 1mg/m3 (dusts and mists)
Source: WEL: Workplace Exposure Limit (UK HSE EH40) *The UK HSE (EH40) recommends the following limits for dusts: 10mg/m3 (8Hr TWA) total inhalable dust: 4mg/m3 (8Hr TWA) total respirable dust.

8.1.2 Biological Limit:

Not applicable.

8.1.3 PNECS and DNELS:

DNELs
Worker - Long term systemic effects (oral) - No Data.
Worker - Acute - Local effects (oral) - No Data.
PNECs
Environmental sediment estuarine 288mg/kg dry weight
Environmental sediment freshwater 87mg/kg dry weight
Environmental sediment marine 676mg/kg dry weight
Environmental soil 65.5mg/kg dry weight
Environmental freshwater 7.8ug/l dissolved copper
Environmental marine water 5.2ug/l dissolved copper
Environmental Sewage Treatment Plant 230ug/l

8.2 Exposure controls:

8.2.1 Engineering Controls:

Ensure adequate ventilation. Use appropriate containment. Good hygiene practices and housekeeping measures.

8.2.2 Personal Protection Equipment:

Use PPE as required. Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substance handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier. Avoid all contact. Keep good industrial hygiene. Wash hands before breaks and after work. Keep work clothes separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke in the workplace.

Eye/Face Protection:
Use of suitable safety glasses recommended. EN 166. Designed to protect against powders and dusts.

Skin Protection:
Protection of hands:
Use of impervious safety gloves is recommended. Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves producer. Recommended: Nitrile rubber.

Body Protection:
Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate to prevent skin contact. Contaminated clothing should be laundered before reuse. Recommended: Safety shoes or boots - chemical resistant.

Respiratory Protection:
In case of insufficient ventilation, wear suitable respiratory equipment. Recommended - Filter minimum FFP2. Associated Protection Factor (APF) =10. In the event of a particular area exceeding the WEL, FFP3 mask is recommended.

8.2.3 Environmental Exposure Controls:
Avoid release to the environment. Do not allow to enter drains, sewers or watercourses.

9) Physical/Chemical Properties

9.1 Information on basic physical and chemical properties

None known

9.2 Other Information:

Oxidising properties- Not-oxidising.
Explosive properties- Not explosive.
Viscosity- Not applicable - Inorganic solid.
Decomposition- Not determined.
Temperature
Auto-ignition temp- Not determined.
Partition coefficient- Not applicable - inorganic solid.
n-octanol/water
Solubility(ies)- Insoluble in water. Solubility test (OECD 105) Insoluble in water.
Relative density- 8.9g/cm3 at 20°C
Vapour density- Not applicable to an inorganic solid.
Vapour pressure- Not applicable - solid
Upper/lowe-r Not applicable
flammability or
explosive limits
Flammability- Non-flammable.
Evaporation rate- Not applicable - solid
Flash point- Not applicable - solid
Initial boiling point- Not applicable to a solid that melts >300°C
and boiling range
Melting point- 1083°C
pH- Not applicable - Inorganic solid
Odour threshold- Not applicable.
Odour- Odourless.
Appearance- Solid, copper colour.

10) Stability/Reactivity

10.1. Stability and reactivity

Stable under normal conditions.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reaction with H+ compounds releases soluble copper compounds. Hazardous polymerisation will not occur.

10.4. Conditions to avoid

Keep away from heat, sources of ignition and direct sunlight. Avoid dust generation.

10.5. Incompatible materials

Mineral acids, oxidising agents, flammable substances.

10.6. Hazardous decomposition products

Copper does not decompose but may be transformed into other metal forms (e.g. Cu2+).

May decompose in a fire giving off toxic fumes. Decomposition products: carbon monoxide, carbon dioxide, metal oxides.

11) Toxicological Info

11.1. Information on toxicological effects

Acute toxicity: Ingestion.
Based on available data, the classification criteria are not met.
LD50 > 2500 mg/kg bw (rat) OECD 423

Acute toxicity: Inhalation.
Based on available data, the classification criteria are not met.
LD50 > 5.11 mg/L air (rat) OECD 436

Acute toxicity: Skin Contact.
Based on available data, the classification criteria are not met.
LD50 > 2000 mg/kg bw (rat) OECD 402

Skin corrosion/irritation.
Based on available data, the classification criteria are not met.
Not irritating to skin (4 Hour) (rabbit) OECD 404

Serious eye damage/irritation.
Based on available data, the classification criteria are not met.
Mildly irritating to eyes (72 hour) (rabbit) OECD 405

Respiratory or skin sensitization.
Based on available data, the classification criteria are not met.
Skin sensitization: Negative (guinea pig) OECD 406

Respiratory sensitization.
No data.

Germ cell mutagenicity.
Based on available data, the classification criteria are not met.
In vitro. Negative OECD 471
In vivo. Negative (mouse) (EU Method B12)

Carcinogenicity.
Based on available data, the classification criteria are not met.
Weight of evidence approach: No evidence of carcinogenic effects.

Reproductive toxicity.
Based on available data, the classification criteria are not met.
No evidence of reproductive effects. (rat) (EPA OPPTS 870.3800)

STOT-single exposure.
Based on available data, the classification criteria are not met.
No evidence of respiratory tract irritation.
Not enough evidence of narcotic effects could be observed (rat) OECD 436

STOT-repeated exposure.
Based on available data, the classification criteria are not met.
Oral: Decrease in weight of heart and kidney. Not enough evidence to classify (EU Method B.26)
Inhalation: Some effects observed at highest dose. Not enough evidence to classify (OECD 412)
Dermal: No data.
Aspiration hazard. Based on available data, the classification criteria are not met.
Inorganic solid.
Other Information. None Known.

12) Ecological Information

12.1. Toxicity

Acute toxicity:

Aquatic Acute 1; Very toxic to aquatic life.
This classification is applicable to copper powders with particle size >10um and < 1mm. Acute 1 Chronic 1 classification - H410 - very toxic to aquatic life with long lasting effects - was assigned in the Copper Voluntary Risk Assessment report 2008. New information was generated and used to revise the chronic environmental classification, in line with the CLP guidance (2012)

Chronic toxicity:

Aquatic chronic 3; Harmful to aquatic life with long lasting effects.
Aquatic Chronic 3. Classification based test results of specific surface area (copper powder> 9.1mm2/mg.) (V3.1 of CSR).

12.2. Persistence and degradability

Not applicable for inorganic substances.

12.3. Bioaccumulative potential

The substance has no potential for bioaccumulation.

12.4. Mobility in soil

The product has low mobility in soil.

12.5. Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6. Other adverse effects

None known

13) Disposal Considerations

13.1. Waste treatment methods

Disposal should be in accordance with local, state or national legislation. To be disposed of as hazardous waste. Do not allow into any sewer on the ground, or into any body of water.

13.2 Additional Information:

Ensure that all packaging is disposed of safely.

14) Transport Information

14.1 UN Number
ADR/RID, IMDG, IATA/ICAO UN3077

14.2 UN Proper Shipping Name
ADR/RID, IMDG, IATA/ICAO Environmentally hazardous substance, solid N.O.S. (copper metal powder)

14.3 Transport Hazard Class(es)
9

14.4. Packing group
III

14.5. Environmental hazards
Marine pollutant/environmentally hazardous substance

14.6. Special precautions for user
See section 2

14.7. Transport in bulk
Not applicable.

14.8 Additional information
Not applicable

15) Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance:
15.1.1 EU Regulations:
Authorisation and/or Restrictions on use: None.

Water Framework Directive:
Copper; Metal compound - Main pollutant Annex V111.

15.1.2 National Regulations:
Not applicable.
15.2 Chemical Safety Assessment:
A REACH chemical safety assessment (CSA) has been carried out.

16) Other Information

Abbreviations and acronyms:
This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) and 2015/830.
Classification of the substance According to Regulation (EC) No 1272/2008 (CLP):
Aquatic Acute 1; H400
Aquatic Chronic 3; H412

Classification Procedure:
Summation Calculation.
Abbreviations:
REACH: EC Regulation on Registration, Evaluation and Authorisation of Chemicals (Regulation (EC) No 1907/2006 as amended)
IMDG: International Maritime Code for Dangerous Goods.
IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods Regulations by the International Air Transport Association.
ICAO: International Civil Aviation Organisation.
ICAO-TI: Technical Instructions by the International Civil Aviation Organisation.
CLP: Classification, Labelling and Packaging.
PBT: Persistent, Bioaccumulative and Toxic.
VPvB: Very Persistent, Very Bioaccumulative.
EINECS: European Inventory of Existing Commercial Chemical Substances.
CAS: Chemical Abstracts Service.
LTEL: Long Term Exposure Limit.
STEL: Short Term Exposure Limit.
DNEL: Derived No Effect Level.
PNEC: Predicted no Effect concentration.
OECD: Organisation for Economic Cooperation and Development.
SCL: Specific concentration Limit.
Hazard classification/Classification code: Hazard Statement(s)
Aquatic Acute 1; Hazardous to the aquatic environment, H400 Very toxic to aquatic life.
Acute, Category 1.
Aquatic Chronic 1; Hazardous to the aquatic environment, H410 Very toxic to aquatic life with long
Chronic, Category 1 lasting effects.
Aquatic Chronic 3; Hazardous to the aquatic environment, H412 Harmful to aquatic life with long
Chronic, Category 3 lasting effects.
Training advise: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.