1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY

Product name: Copper Metal Powder - Spherical, Irregular
Company: Easy Composites Ltd
Unit 39, Park Hall Business Village, Longton, Stoke-on-Trent, ST3 5XA, United Kingdom
Email: sales@easycomposites.co.uk
Telephone: +44 (0)1782 454499

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Aquatic Acute 1

Classification according to EU Directives 67/548/EEC or 1999/45/EC
N-Dangerous for the environment
R50 – very toxic to aquatic organisms

Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP]

Pictogram:

Signal word: Warning
Hazard statement(s): H400 Very toxic to aquatic life
Precautionary statement(s):
P273 Avoid release to the environment
P391 Collect Spillage
P501 Dispose of contents/container in accordance with local / regional / national / international regulations


Hazard symbol(s)

R-phrase(s): R50 Very toxic to aquatic organisms
S-phrase(s) | S22 Do not breathe dust.  
| S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
| S38 In case of insufficient ventilation, wear suitable respiratory equipment.  
| S60 This material and its container must be disposed of as hazardous waste  
| S61 Avoid release to the environment. Refer to special instructions/safety data sheet  

Other hazards  
The substances in the mixture do not meet the criteria for PBT or vPvB substances  
Classification System is according to latest editions of EU lists and is extended by company and literature data.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Description of Material:** Copper powder  
**Synonyms:** None  
**Chemical Composition:**

<table>
<thead>
<tr>
<th>EINECS N°</th>
<th>CAS N°</th>
<th>INDEX N°</th>
<th>Chemical Name</th>
<th>Conc. (% w/w)</th>
<th>Hazard class and category code</th>
<th>Hazard statement</th>
<th>Danger symbol/R phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>231-159-6</td>
<td>7440-50-8</td>
<td>n.a.</td>
<td>Copper</td>
<td>&gt;95</td>
<td>Aquatic Acute 1</td>
<td>H400</td>
<td>&lt;N&gt;, R50</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Skin contact**  
Wash with mild soap and water. Generally the product does not irritate the skin. Seek medical advice if irritation occurs/persists.

**Eye contact**  
Rinse opened eye for several minutes under running water. Seek medical attention if irritation persists.

**Inhalation**  
Move exposed person to fresh air. Keep warm and at rest. Seek medical attention as soon as possible.

**Ingestion**  
Wash mouth out with water, seek medical attention if symptoms occur.

**Most Important Symptoms and effects, both acute and delayed**  
Exposure by inhalation (large quantities) will produce symptoms called metal fume fever, influenza type symptoms which last 24-48 hours.

Copper may cause irritation to upper respiratory tract, metallic taste, discoloration of skin and hair. Ingestion or inhalation of large quantities may cause nausea or vomiting.

Dust irritates nose and trachea, in certain individuals skin contact for long periods may cause irritation and possible dermatitis.

Copper may cause gastro enteric problems.

### 5. FIRE FIGHTING MEASURES

**Extinguishing media**  
Dry sand, dry powder extinguisher, fire blanket.

**Decomp Products**  
Carbon oxides, Borane/boron oxides

**Fire hazards**  
Extinguishing Media not suitable for safety reasons: Liquid based extinguishers must not be used on molten metal.

**Special Procedures**  
DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL. Withdraw from fire and let it burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from the windows. Cool closed containers exposed to fire with water.

**Protective equipment**  
Fire fighters should wear self contained positive pressure breathing apparatus (SCBA) and full turnout gear.
6. ACCIDENTAL RELEASE MEASURES

Personal precautions
- Wear protective equipment.
- Keep unprotected persons away.
- Avoid formation of dust.

Large Spill or Leak
- Do not allow product to reach ground water, water bodies or sewerage system.
- Pick up manually or vacuum.

7. HANDLING AND STORAGE

Handling
- Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
- Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Storage
- Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES:
- TLV - TWA (ACGIH, 2009) Cu 0.2 mg/m³ (fumes);
- TLV – TWA (ACGIH, 2009) Cu 1 mg/m³ (dusts and mists);

Exposure Controls:
- Appropriate engineering controls
- Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Personal Protective equipment
- Ventilation: Preferably Local exhaust ventilation (LEV) must be sufficient to keep concentration below occupational exposure limit
- Respiratory protection: Particulate cartridge filter type when LEV cannot be supplied.
- A suitable barrier cream is recommended.
- Eye Protection: Tight safety goggles.
- Body Protection: Protective work clothing
- General Safety and Hygiene measures: Do not eat or drink while working with the product. Wash hands before breaks and at the end of work.

EXPOSURE PATTERN

| Human- Long-term - systemic effects | Oral, dermal and inhalation | Internal dose DNEL (Derived No Effect Level) | 0.041 mg Cu/kg body weight/day |
| Human- Short-term - systemic effects | Oral, dermal and inhalation | Internal dose DNEL (Derived No Effect Level) | 0.082 mg Cu/kg body weight/day |
| Human- Short-term – effects- drinking water | Oral | A NOAEL for drinking water | 4 mg/l |
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Irregular powder</td>
</tr>
<tr>
<td>Colour</td>
<td>Yellow gold</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Boiling point</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1083°C</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>no data available</td>
</tr>
<tr>
<td>Relative Density</td>
<td>2-4 g/cm³ at 20°C</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Cu: Insoluble - copper needs to be transformed into a copper compound to become soluble. A solubility test (OECD 105) demonstrated a solubility of &lt;1 mg Cu/l for a copper powder.</td>
</tr>
<tr>
<td>Auto-flammability</td>
<td>no auto-ignition</td>
</tr>
<tr>
<td>Vapour density</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>no data available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>8.9 g/cm³ at 20°C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

| Reactivity             | No decomposition in usual conditions                                 |
| Chemical stability     | Stable under normal conditions of use                                |
| Possibility of hazardous reactions | May yield hydrogen and noxious copper compounds if affected by unsuitable materials. |
| Conditions to avoid    | Avoid dust formation and contact with acids                           |
| Incompatible materials | Strong acids                                                        |
| Hazardous decomposition products | No data available                                                  |

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Copper</td>
</tr>
<tr>
<td>Oral</td>
<td>LD-50 rats &gt;2000mg/kg body weight</td>
</tr>
<tr>
<td></td>
<td>Not classified</td>
</tr>
<tr>
<td>Dermal</td>
<td>Not classified</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Fractions with d50 &gt; 10 μm not classified</td>
</tr>
<tr>
<td></td>
<td>Fractions with &lt;10 μm not classified</td>
</tr>
<tr>
<td></td>
<td>LD-50 rats 1-5 g/m³ air</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
**12. ECOLOGICAL INFORMATION**

**Toxicity**

**Acute aquatic toxicity:** Cu: Toxicity for pH = 5.5-6.5 L(E)C50 of 25.0 μg Cu/L (Van Sprang et al., 2010, in Copper Chemical Safety Report (CSR), 2010). M-factor: 1

**Chronic freshwater toxicity:** Cu: Not classified (Predicted No-Effect Concentration (PNEC): 7.8 μg/l is the value of dissolved Cu/l to be used to assess local risks)

**Chronic marine waters toxicity:** Cu: Not classified (PNEC: 5.2 μg/l is the value of dissolved Cu/l to be used to assess local risks)

**Chronic freshwater sediment toxicity:** Cu: Freshwater sediment PNEC is: 87 mg Cu/kg dry sediment weight

**Soil toxicity** Cu: Soil PNEC: 65.5 mg Cu/kg dry weight of soil

**Persistence and degradability** Not classified

**Bioaccumulative potential** Not classified

**Mobility in soil** Cu: Copper-ions bind strongly to the soil matrix. The binding depends on the soil properties. A median water-soil partitioning coefficient (Kp) of 2120 L/kg has been derived.

**Results of PBT and vPvB assessment** The mixture does not contain PBT or vPvB substances

**Other adverse effects** Copper is not expected to contribute to ozone depletion, ozone formation, global warming or acidification.
13. DISPOSAL CONSIDERATIONS

Product Disposal
Remove in accordance with local official regulations. Dispose of at a hazardous waste landfill. Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Container Disposal
Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local/state/federal regulations.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>3077</td>
<td>3077</td>
</tr>
<tr>
<td>UN Proper shipping name</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S. (COPPER POWDER)</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S. (COPPER POWDER)</td>
</tr>
<tr>
<td>Transport Hazard Class(es)</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Environmental Hazards</td>
<td>Classified as hazardous</td>
<td>Classified as hazardous</td>
</tr>
<tr>
<td>Special Precautions for user</td>
<td>(*)</td>
<td>EmS: F-A, S-F (*)</td>
</tr>
<tr>
<td>Transport in Bulk according to Annex II of Marpol73/78 and the IBC code Labelling</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

(*) – The transport, comprising charge and discharge, must be made by people who have been trained on ‘Dangerous Goods Regulations’
## 15. REGULATORY INFORMATION

The mixture is NOT subject to:

**Safety, health and environmental regulations/legislation specific for the substance or mixture**


**Chemical Safety Assessment**

Has been carried out for copper

## 16. OTHER INFORMATION

**Further information**

The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.