GOLDLEAF AND METALLIC POWDERS

SAFETY DATA SHEET

Copper Powder

Page: 1 / 11 Revision nr: 3

Issue date : 09/03/2015 Supersedes : 25/06/2013

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name/designation : Copper Powder

 Chemical name
 : copper

 EC No
 : 231-159-6

 CAS No.
 : 7440-50-8

REACH registration No. : 01-2119480154-42-XXXX Product code : 1 (Extra Brilliant Copper)

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

Main use category : Industrial uses ., Professional use .

1.3. Details of the supplier of the safety data sheet

Company : Distributed by:

Gold Leaf and Metallic Powders

6001 Santa Monica Boulevard Los Angeles, CA 90038 USA Telephone (800) 569-5323 E-mail: info@glandmp.com Website: www.GLandMP.com

1.4. Emergency telephone number

Emergency telephone : +32 (0)475 38 36 83 (This telephone number is available 24 hours per

day, 7 days per week.)

IRELAND (REPUBLIC OF)

National Poisons Information Centre

Beaumont Hospital +353 18 37 99 64/+353 1 809 21 66

UNITED KINGDOM

National Poisons Information Service

(Newcastle Centre)

Regional Drugs and Therapeutics Centre,

Wolfson Unit

0844 892 0111 (UK only, Monday to Friday, 08.00 to 18.00 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EU) 1272/2008

CLP-Classification : The product is classified as hazardous in accordance with Regulation

(EC) No. 1272/2008.

Aquatic Acute 1 H400 Aquatic Chronic 3 H412

Full text of H-phrases: see section 16

2.1.2. Classification according to EU Directives 67/548/EEC or 1999/45/EC

Classification : This substance is classified as hazardous according to 67/548/EEC.

N; R50 R53

Full text of R-phrases: see section 16

GOLDLEAFAND **METALLIC POWDERS** In The Family Of &NEUBERG

SAFETY DATA SHEET

Page: 2 / 11 Revision nr: 3

Issue date: 09/03/2015 Supersedes: 25/06/2013

Copper Powder

Label elements

2.2.1. Labelling according to Regulation (EU) 1272/2008

Hazard pictograms

GHS09

Signal word

Warning

Hazard statements H400 - Very toxic to aquatic life.

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 to an approved waste disposal plant.

2.2.2. Labelling according to Directives (67/548 - 1999/45)

Not relevant

2.3. Other hazards

Other hazards This substance is not considered to be persistent, bioaccumulating nor toxic

This substance is not considered to be very persistent nor very bioaccumulating

(vPvB).

SECTION 3: Composition/information on ingredients

3.1. Substances

| Substance name | Product identifier | % | Classification according to Directive 67/548/EEC |
|----------------|--|-----|---|
| copper | (CAS No.) 7440-50-8 (EC No) 231-159-6 (REACH-no) 01-2119480154-42-XXXX | 100 | N; R50 R53 |

| Substance name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|----------------|--|-----|---|
| copper | (CAS No.) 7440-50-8 (EC No) 231-159-6 (RFACH-no) 01-2119480154-42-XXXX | 100 | Aquatic Acute 1, H400 (M=10) Aquatic Chronic 3, H412 |

Full text of R- and H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

Description of first aid measures 4.1.

Inhalation : Provide fresh air.

Put victim at rest, cover with a blanket and keep warm. Artificial respiration and/or oxygen may be necessary.

If symptoms persist, call a physician.

Skin contact : Wash with plenty of water/.

Take off contaminated clothing.

GOLDLEAFAND **METALLIC POWDERS** In The Family Of NEUBERG

In case of ingestion

SAFETY DATA SHEET

Page: 3 / 11 Revision nr: 3

Issue date: 09/03/2015 Supersedes: 25/06/2013

Copper Powder

: Rinse immediately with plenty of water, also under the eyelids, for at Eye contact

least 15 minutes.

If symptoms persist, call a physician. Rinse mouth thoroughly with water.

Rinse mouth immediately and drink plenty of water.

If symptoms persist, call a physician.

Additional advice : First aider: Pay attention to self-protection!

> See also section 8 Treat symptomatically.

When in doubt or if symptoms are observed, get medical advice.

Most important symptoms and effects, both acute and delayed

Inhalation Dyspnoea, The following symptoms may occur: Cough, sore throat

Headache,.

Skin contact : Prolonged skin contact may cause skin irritation. Symptoms : erythema

(redness).

Eye contact Dust contact with the eyes can lead to mechanical irritation.

Ingestion : Abdominal pain The following symptoms may occur: Nausea Vomiting.

<u>4</u>.3. Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Dry sand, ABC-powder, Co-ordinate fire-fighting measures to the fire

surroundings.

Extinguishing media which must not be used : Water

for safety reasons:

Special hazards arising from the substance or mixture 5.2.

Fire hazard : Non-flammable.

Specific hazards Do not allow run-off from fire-fighting to enter drains or water courses.

Dispose according to legislation.

Advice for firefighters

Advice for firefighters : Special protective equipment for firefighters.

In case of fire: Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Evacuate area.

Prevent unauthorised persons entering the zone.

Provide adequate ventilation.

Use personal protective equipment as required. Personal protection equipment: see section 8

Avoid generation of dust. Do not breathe dust.

For emergency responders Ensure procedures and training for emergency decontamination and

disposal are in place.

Personal protection equipment: see section 8.

Environmental precautions 6.2.

Environmental precautions : Do not allow to enter into surface water or drains.

GOLD LEAF AND METALLIC POWDERS In The Family Of NEU BEIRG

SAFETY DATA SHEET

Copper Powder

Page: 4 / 11 Revision nr: 3

Issue date : 09/03/2015 Supersedes : 25/06/2013

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so.

Dam up.

Take up mechanically.

Dispose according to legislation.

6.4. Reference to other sections

Personal protection equipment: see section 8

Disposal: see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling : Provide adequate ventilation.

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes.

Do not breathe dust.

Personal protection equipment: see section 8

Avoid generation of dust.

Take any precaution to avoid mixing with incompatible materials.

See also section 10

Do not allow to enter into surface water or drains.

Advices on general occupational hygiene : Keep good industrial hygiene.

When using do not eat, drink or smoke.

Wash hands before breaks and immediately after using the product.

Take off contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage : Keep containers tightly closed in a dry, cool and well-ventilated place.

Do not store near or with any of the incompatible materials listed in

section 10.

Packaging materials : Keep/Store only in original container.

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit values :

| copper (7440-50- | 8) | |
|------------------|---|--|
| Austria | MAK (mg/m³) | 1 mg/m³ (inhalable fraction) 0,1 mg/m³ (respirable fraction, smoke) |
| Austria | MAK Short time value (mg/m³) | 4 mg/m³ (inhalable fraction) 0,4 mg/m³ (respirable fraction, smoke) |
| Belgium | Limit value (mg/m³) | 0,2 mg/m³ (fume) 1 mg/m³ (dust and mist) |
| Bulgaria | OEL TWA (mg/m³) | 0,1 mg/m³ (metal vapor) |
| Croatia | GVI (granična vrijednost izloženosti) (mg/m³) | 0,2 mg/m³ (fume) 1 mg/m³ (dust) |
| Croatia | KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m³) | 2 mg/m³ (dust and fumes) |
| France | VLE (mg/m³) | 2 mg/m³ (dust) |
| France | VME (mg/m³) | 0,2 mg/m³ (fume) 1 mg/m³ (dust) |

GOLD LEAF AND METALLIC POWDERS

SAFETY DATA SHEET

Copper Powder

Page: 5 / 11 Revision nr: 3

Issue date : 09/03/2015 Supersedes : 25/06/2013

| copper (7440-50-8) | | |
|---------------------------------|--|---|
| Greece | OEL TWA (mg/m³) | 0,2 mg/m³ (fume) 1 mg/m³ (dust) |
| Greece | OEL STEL (mg/m³) | 2 mg/m³ (dust) |
| Italy - Portugal - USA ACGIH | ACGIH TWA (mg/m³) | 0,2 mg/m³ (fume) |
| Latvia | OEL TWA (mg/m³) | 0,5 mg/m³ |
| Spain | VLA-ED (mg/m³) | 0,2 mg/m³ (fume) 1 mg/m³ (dust and mist) |
| Switzerland | VLE (mg/m³) | 0,2 mg/m³ (inhalable) |
| Switzerland | VME (mg/m³) | 0,1 mg/m³ (inhalable) |
| Netherlands | Grenswaarde TGG 8H (mg/m³) | 0,1 mg/m³ (inhalable fraction) |
| United Kingdom | WEL TWA (mg/m³) | 1 mg/m³ (dust and mists) 0,2 mg/m³ (fume) |
| United Kingdom | WEL STEL (mg/m³) | 0,6 mg/m³ (calculated-fume) 2 mg/m³ (dust and mist) |
| Czech Republic | Expoziční limity (PEL) (mg/m³) | 1 mg/m³ (dust) 0,1 mg/m³ (fume) |
| Denmark | Grænseværdie (langvarig) (mg/m³) | 1,0 mg/m³ (dust and powder) 0,1 mg/m³ (fume) |
| Finland | HTP-arvo (8h) (mg/m³) | 1 mg/m ³ 0,1 mg/m ³ (respirable dust and fume) |
| Hungary | AK-érték | 1 mg/m³ 0,1 mg/m³ (fume) |
| Hungary | CK-érték | 4 mg/m³ 0,4 mg/m³ (fume) |
| Ireland | OEL (8 hours ref) (mg/m³) | 0,2 mg/m³ (fume) 1 mg/m³ (dust and mist) |
| Ireland | OEL (15 min ref) (mg/m3) | 0,6 mg/m³ (calculated-fume) 2 mg/m³ (dust and mist) |
| Lithuania | IPRV (mg/m³) | 1 mg/m³ (inhalable fraction) 0,2 mg/m³ (respirable fraction) |
| Norway | Gjennomsnittsverdier (AN) (mg/m³) | 0,1 mg/m³ (fume) 1 mg/m³ (dust) |
| Norway | Gjennomsnittsverdier (Korttidsverdi) (mg/m3) | 0,3 mg/m³ (fume) 3 mg/m³ (dust) |
| Poland | NDS (mg/m³) | 0,2 mg/m³ |
| Romania | OEL TWA (mg/m³) | 0,50 mg/m³ (powder) |
| Romania | OEL STEL (mg/m³) | 0,20 mg/m³ (fume) 1,50 mg/m³ (dust) |
| Slovakia | NPHV (priemerná) (mg/m³) | 1 mg/m³ (dust) 0,1 mg/m³ (fume) |
| Slovakia | NPHV (Hraničná) (mg/m³) | 2 mg/m³ (dust) 0,2 mg/m³ (fume) |
| Sweden | nivågränsvärde (NVG) (mg/m³) | 1 mg/m³ (total dust) 0,2 mg/m³ (respirable dust) |

Recommended monitoring procedures : Concentration measurement in air Personal air monitoring

| Copper Powder (7440-50-8) |
|--------------------------------|
| DNEL/DMEL (general population) |

GOLD LEAF AND METALLIC POWDERS In The Family Of NEUBERG

SAFETY DATA SHEET

Copper Powder

Page: 6 / 11 Revision nr: 3

Issue date : 09/03/2015 Supersedes : 25/06/2013

| Copper Powder (7440-50-8) | |
|--|----------------------------|
| Acute - systemic effects, dermal | 0,082 mg/kg bodyweight |
| Acute - systemic effects, inhalation | 0,082 mg/kg bodyweight/day |
| Acute - systemic effects, oral | 0,082 mg/kg bodyweight |
| Long-term - systemic effects,oral | 0,041 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 0,041 mg/kg bodyweight/day |
| Long-term - systemic effects, dermal | 0,041 mg/kg bodyweight/day |
| PNEC (water) | |
| PNEC aqua (freshwater) | 7,8 μg/L |
| PNEC aqua (marine water) | 5,2 μg/L |
| PNEC (sediment) | |
| PNEC sediment (freshwater) | 87 mg/kg dwt |
| PNEC sediment (marine water) | 676 mg/kg dwt |
| PNEC (soil) | |
| PNEC soil | 65,5 mg/kg dwt |
| PNEC (STP) | |
| PNEC sewage treatment plant | 230 g/l |

8.2. Exposure controls

Personal protection equipment : The type of protective equipment must be selected according to the

concentration and amount of the dangerous substance at the specific

workplace.:

Respiratory protection : Use appropriate respiratory protection.

Effective dust mask. (EN 149)

Respirator with a particle filter (EN 143):

Full face mask (EN 136) Half-face mask (DIN EN 140)

Filter type: P1

Hand protection : Wear gloves in accordance with EN 388 as a protection against

mechanical risks.,Leather gloves,The selection of specific gloves for a specific application and time of use in a working area, should also take into account other factors on the working space, such as (but not limited to): other chemicals that are possibly used, physical requirements (protection against cutting/drilling, skill, thermal

protection), and the instructions/specification of the supplier of gloves.

Eye protection : Dust protection eye glasses (EN 166)
Body protection : Wear suitable protective clothing.
Thermal hazard protection : Not required under normal use.

Use dedicated equipment.

Engineering control measures : Use only in area provided with appropriate exhaust ventilation.

Organisational measures to prevent/limit releases, dispersion and

exposure

See also section 7

Environmental exposure controls : Do not allow to enter into surface water or drains.

Comply with applicable Community environmental protection

legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance : Powder
Colour : Copper
Odour : odourless

GOLD LEAF AND METALLIC POWDERS In The Family Of NEUBERG SAFEUBERG

SAFETY DATA SHEET

Page: 7 / 11
Revision nr: 3

Issue date : 09/03/2015 Supersedes : 25/06/2013

Copper Powder

Odour threshold: No data available Odour threshold: No data available рΗ Not applicable Melting point/freezing point 1083 °C Initial boiling point and boiling range 2597 °C Flash point Not applicable Evaporation rate No data available Flammability (solid, gas) Non-flammable. Upper/lower flammability or explosive limits No data available

Upper/lower flammability or explosive limits : No data available Vapour pressure : Not applicable Vapour density : No data available

Density : 8,96 g/cm³

Relative density : No data available

Water solubility : Insoluble

Solubility in different media : No data available
Partition coefficient n-octanol/water : No data available
Auto-ignition temperature : Not applicable
Decomposition temperature : No data available
Viscosity : No data available
Explosive properties : Not applicable

The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the

molecule.

Oxidising properties : Not applicable

The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with

oxidising properties.

9.2. Other information

Other information : (Apparent) Density : 0,6 - 1,3 g/cm³ @ 20°C

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity : None under normal processing.
Reference to other sections: 10.5

10.2. Chemical stability

Stability : The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions : Reference to other sections: 10.4/10.5

10.4. Conditions to avoid

Conditions to avoid : Keep away from heat, hot surfaces, sparks, open flames and other ignition

sources. No smoking. See also section 7

10.5. Incompatible materials

Incompatible materials : No data available

10.6. Hazardous decomposition products

Hazardous decomposition products : metal oxides

GOLD LEAF AND METALLIC POWDERS In The Family Of NEUBERG

SAFETY DATA SHEET

Copper Powder

Page: 8 / 11 Revision nr: 3

Issue date : 09/03/2015 Supersedes : 25/06/2013

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met.)

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met.)

pH: Not applicable

Serious eye damage/eye irritation : Not classified (Based on available data, the classification criteria are not met.)

pH: Not applicable

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met.)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met.)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met.)

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met.)

STOT-single exposure : Not classified (Based on available data, the classification criteria are not met.)

STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met.)

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met.)

Other information

Symptoms related to the physical, chemical and toxicological characteristics, Reference to other sections: 4.2

SECTION 12: Ecological information

12.1. Toxicity

Toxicity : Very toxic to aquatic organisms.

| copper (7440-50-8) | |
|---------------------------|---|
| LC50 fish 1 | 0,0068 - 0,0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas) |
| EC50 Daphnia 1 | 0,03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static]) |
| LC50 fish 2 | < 0,3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static]) |
| EC50 72h algae [mg/l] (1) | 0,0426 - 0,0535 mg/l (Species: Pseudokirchneriella subcapitata [static]) |
| EC50 96h algae [mg/l] (1) | 0,031 - 0,054 mg/l (Species: Pseudokirchneriella subcapitata [static]) |

12.2. Persistence and degradability

Persistence and degradability : Not biodegradable not persistent.

12.3. Bioaccumulative potential

Bioaccumulation : No data available Partition coefficient n-octanol/water : No data available

12.4. Mobility in soil

Mobility : No data available

GOLD LEAF AND METALLIC POWDERS

SAFETY DATA SHEET

Copper Powder

Page: 9 / 11
Revision nr: 3

Issue date : 09/03/2015 Supersedes : 25/06/2013

12.5. Results of PBT and vPvB assessment

PBT/vPvB data : This substance is not considered to be persistent, bioaccumulating nor toxic

(PBT).

This substance is not considered to be very persistent nor very

bioaccumulating (vPvB).

12.6. Other adverse effects

Other information

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product waste: : Do not dispose of together with household waste.

If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Delivery to an approved waste disposal company. Further ecological information : Do not allow to enter into surface water or drains.

List of proposed waste codes/waste designations in accordance with EWC

: Classified as hazardous waste according to European Union regulations. Waste codes should be assigned by the user, preferably in discussion with the

waste disposal authorities.

The following Waste Codes are only suggestions:

12 01 04

SECTION 14: Transport information

14.1. UN number

UN number : 3077

14.2. UN proper shipping name

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Copper Powder

())

Proper shipping name IATA/IMDG : ËNVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper

Powder())

14.3. Transport hazard class(es)

14.3.1. Overland transport

ADR/RID : tunnel restriction code E

Class(es) : 9 - Miscellaneous dangerous substances and articles

Hazard identification number (Kemler No.) : 90

Classification code : M7

ADR/RID-Labels : 9 - Miscellaneous dangerous substances and articles



14.3.2. Inland waterway transport (ADN)

Class (UN) : 9

14.3.3. Transport by sea

Class or Division : 9 - Miscellaneous dangerous substances and articles

14.3.4. Air transport

Class or Division : 9 - Miscellaneous dangerous substances and articles

GOLDLEAFAND **METALLIC POWDERS** In The Family Of NEUBERG

SAFETY DATA SHEET

Page: 10 / 11 Revision nr: 3

Issue date: 09/03/2015 Supersedes : 25/06/2013

Copper Powder

14.4. Packing group

: III Packing group

14.5. **Environmental hazards**

Environmental hazards : N



Other information : Not applicable.

<u>14.6</u> Special precautions for user

Special precautions for user : Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Code: IBC : Not applicable.

SECTION 15: Regulatory information

<u>15.1.</u> Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Restrictions on use : Not applicable

This product contains an ingredient according to the

candidate list of Annex XIV of the REACH

Regulation 1907/2006/EC. : none

Authorisations : Not applicable

15.1.2. National regulations

WGK 2

TA-Luft Total dust DE: FR: Installations classées 117X

NI · ARM 5 - Very toxic to aquatic organisms (B) NeR (Nederlandse emissie Richtlijn) Inorganic substances in powdered form NL:

Chemical safety assessment

Chemical Safety Assessment : For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

: Hazardous to the aquatic environment - Aquatic Acute 1 Aquatic Acute 1

Aquatic Chronic 3 Hazardous to the aquatic environment - chronic hazard category 3

H400 Very toxic to aquatic life.

H412 Harmful to aquatic life with long lasting effects.

R50 Very toxic to aquatic organisms.

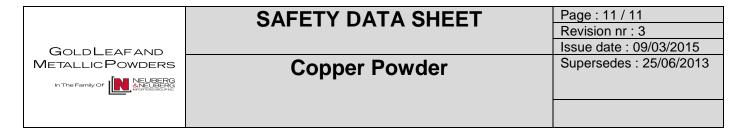
May cause long-term adverse effects in the aquatic environment. R53

Dangerous for the environment

Key literature references and sources: European Metal Particulate Association (EMPA)

for data

Abbreviations and acronyms : ADN = Accord Européen relatif au Transport International des Marchandises



Dangereuses par voie de Navigation du Rhin

ADR = Accord européen relatif au transport international des marchandises

Dangereuses par Route

CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC

IATA = International Air Transport Association

IMDG = International Maritime Dangerous Goods Code

LEL = Lower Explosive Limit/Lower Explosion Limit

UEL = Upper Explosion Limit/Upper Explosive Limit

REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals

TWA = time weighted average

STEL = Short term exposure limit

PBT = persistent, bioaccumulating and toxic (PBT).

vPvB = very persistent and very bioaccumulating

EWC = European Waste Catalogue

NA = Not applicable

LC50 = Median lethal concentration

LD 50 = Median lethal dose

DNEL = Derived No Effect Level

PNEC = Predicted No Effect Concentration NOAEL = No observed adverse effect level

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC, 1272/2008/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

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