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FLINTS
Theatrical Chandlers

SAFETY DATA SHEET – LEMON, PALE GOLD, RICH GOLD & DEEP GOLD POWDER

1. IDENTIFCATION OF SUBSTANCE/PREPARATION & COMPANY

1.1. Product identifier

Product Name/Code: Lemon Powder, DPP050
Pale Gold Powder, DPP051
Rich Gold Powder, DPP259
Deep Gold Powder, DPP500

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

Recommended use: Inorganic (metallic) Pigment

1.3. Details of the supplier of the safety data sheet:

Company: Flints Theatrical Chandlers Ltd
Unit 9 Deptford Trading Estate
Blackhorse Road
SE8 5HY

Telephone: +44 (0) 20 7703 9786

Email: sales@flints.co.uk

Telephone operated from 08:30 – 17:30 Monday to Friday, 09:00 – 14:00 Saturday.
In an emergency, seek advice from a medical professional.

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

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

Aquatic Acute 1

Aquatic Chronic 1

Classification according to EU Directives 67/548/EEC or 1999/45/EC Very toxic to aquatic organisms.

2.2. Label elements

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

Pictogram:

Signal word: Danger

Hazard statement(s): H410 Very Toxic to aquatic life with long lasting effects

Precautionary statement(s) P273 Avoid release to the environment

P501 Dispose of contents/container in accordance with local/regional/national/international regulations

Labeling According to European Directive 67/548/EEC as amended.

Hazard symbol(s)  «N» Dangerous for Environment

R-phrase(s) R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrase(s) S43 In case of fire use dry sand. Never use water

S61 Avoid release to the environment. Refer to special instructions/safety data sheet

2.3. 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

3.1 Description of Material: Copper, Zinc Alloy

Chemical Composition:

EINECS N°	CAS N°	INDEX N°	Chemical name	Conc. (% w/w)	Hazard class and category code	Hazard statement	Danger symbol/R phrases
231-159-6	7440-50-8	n.a.	Copper	40-99	Aquatic Acute 1	H400	«N», R50, R53
231-175-3	7440-66-6	030-001-01-9	Zinc	1-50	Aquatic Acute 1; Aquatic Chronic 1	H400;H410	«N», R50, R53

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice: First aid followed by medical attention.

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

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.

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

4.2 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.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically

5. FIRE FIGHTING MEASURES

5.1 Suitable Extinguishing Media:

Dry sand, dry powder extinguisher, fire blanket.

Extinguishing Media not suitable for safety reasons:

Liquid based extinguishers must not be used on molten metal.

5.2 Special hazards arising from the substance or mixture:

None

5.3 Advice for firefighters:

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions:	Wear protective equipment.
	Keep unprotected persons away.
	Avoid formation of dust
6.2 Environmental precautions:	Do not allow product to reach ground water, water bodies or sewerage system.
6.3 Methods for cleaning up:	Pick up manually.
6.4 Reference to other sections:	See also sections 8 and 13

7. HANDLING AND STORAGE

7.1 Precautions for Safe 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.

7.2 Conditions for safe storage including any incompatibilities:

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

7.3 Specific end uses: None.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control Parameters:

EXPOSURE LIMIT VALUES:

TLV - TWA (ACGIH, 2009) Cu 0.2 mg/m^3 (fumes); Zn 5 mg/m^3 (fumes)

TLV – TWA (ACGIH, 2009) Cu 1 mg/m^3 (dusts and mists); Zn 10 mg/m^3 (dust)

EXPOSURE PATTERN	ROUTE	DESCRIPTOR	DNEL
Human- Long-term - systemic effects	Oral, dermal and inhalation	Internal dose DNEL (Derived No Effect Level) Using absorption factors of 25% for oral, 100% for inhalation (respirable) and 0.03% for dermal exposure routes	0.041mg Cu/kg body weight/day
Human- Short-term - systemic effects	Oral, dermal and inhalation	Internal dose DNEL (Derived No Effect Level) Using absorption factors of 25% for oral, 100% for inhalation (respirable) and 0.03% for dermal exposure routes	0.082mg Cu/kg body weight/day
Human- Short-term – effects- drinking water	Oral	A NOAEL for drinking water	4 mg/l
DNEL (INHALATION OF INSOLUBLE Zn) = **5 mg/m^3**			

National exposure control limits must be considered where appropriate.

8.2 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.

Hand Protection:

Gloves: consult manufacturer for suitable specification. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

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9.1 Information on basic physical and chemical properties

a) Appearance: Gold coloured powder

b) Odour: odourless

c) Odour threshold no data available

d) pH no data available

e) Melting point/freezing point 900°C

f) **Initial boiling point and boiling range** **no data available**

g) **Flash point** **no data available**

h) **Evaporation rate** **no data available**

i) **Flammability (solid, gas)** **product is not self-igniting**

j) **Upper/lower flammability or explosive limits** **no data available**

k) **Vapour pressure** **no data available**

l) **Vapour density** **no data available**

m) **Relative density** **7 – 8.9 g/cm^3 at 20°C**

n) **Specific Weight** **no data available**

o) **Water solubility** **Cu: Insoluble - copper needs to be transformed into a copper compound to become soluble. A solubility test (OECD 105) demonstrated a solubility of <1 mg Cu/l for a copper powder. Zn: 0.1 mg/l**

p) **Partition coefficient: n octanol/water** **no data available**

q) **Autoignition temperature** **No autoignition**

r) **Decomposition temperature** **no data available**

s) **Viscosity** **no data available**

t) **Explosive properties** **non explosive**

u) Oxidizing properties no data available

9.2 Other Safety Information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No decomposition in usual conditions

10.2 Chemical stability

Stable under normal conditions of use

10.3 Possibility of hazardous reactions

No dangerous reactions are known, refer to storage conditions point 7.

10.4 Conditions to avoid

Avoid direct sunlight and building of sparks

Keep away from sources of ignition and naked flames

10.5 Incompatible materials

Strong acids

10.6 Hazardous decomposition products

No data available.

11. TOXICOLOGICAL INFORMATION

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11.1 Information on toxicological effects

Acute toxicity

Copper Zinc

Oral LD-50 rats >2000mg/kg body weight Not classified LD-50 rats >2000mg/kg body weight Not classified

Dermal Not classified Not classified

Inhalation Fractions with d50 > 10 ↔m Not classified not classified

Fractions with <10 ↔m

LD-50 rats 1-5 g/m^3 air

Skin corrosion/irritation

May irritate skin

Serious eye damage/eye irritation

May irritate eyes

Respiratory or skin sensitization

Individuals who may have had allergic reactions to metals or sensitivity, may encounter skin rash or dermatitis, if skin contact with this product occurs. Persons with impaired pulmonary functions, may incur further impairment if dust or fumes are inhaled.

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Not classified

Specific target organ toxicity - repeated exposure

Not classified

Aspiration hazard

Not classified.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1 Acute aquatic toxicity:

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

Zn: Toxicity for pH < 7: EC50 = 0.9 mg Zn/l 48h (Dubia Ceriodaphnia)

Toxicity for pH > 7 – 8.5: EC50 = 0.3 mg Zn/l 72h (Selenastrum capricornutum). M-factor: 1

12.1.2 Chronic freshwater toxicity:

Cu: Not classified (Predicted No-Effect Concentration (PNEC): 7,8 μ g/l is the value of dissolved Cu/l to be used to assess local risks)

Zn: PNEC: 20.6 μ g Zn/l

12.1.3 Chronic marine waters toxicity:

Cu: Not classified (PNEC: 5.2 μ g/l is the value of dissolved Cu/l to be used to assess local risks) Zn: PNEC: 6.1 μ g Zn/l

12.1.4 Chronic freshwater sediment toxicity:

Cu: Freshwater sediment PNEC is: 87 mg Cu/kg dry sediment weight

Zn: Freshwater sediment PNEC is: 235.6 mg Zn/kg dry sediment weight.

12.1.5 Chronic marine water sediment toxicity:

Zn: Freshwater sediment PNEC is: 113 mg Zn/kg dry sediment weight.

12.1.6 Soil toxicity:

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

Zn: Soil PNEC: 106.8 mg/kg dry weight of soil

12.1.7 Toxicity to micro-organisms in STP: PNEC in Sewage Treatment Plant: 52 μ g Zn/l.

12.2 Persistence and degradability

Not classified

12.3 Bioaccumulative potential

Not classified

12.4 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.

Zn: A median water-soil partitioning coefficient (Kp) of 158 L/kg has been derived.

12.5 Results of PBT and vPvB assessment

The mixture does not contain PBT or vPvB substances

12.6 Other adverse effects

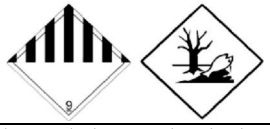
Copper, and Zinc are not expected to contribute to ozone depletion, ozone formation, global warming or acidification..

13. DISPOSAL INFORMATION

Product: 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.

Used packaging material: 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

	ADR/RID	IMDG	IATA
14.1 UN number	3077	3077	3077
14.2 UN Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S. (COPPER POWDER)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S. (COPPER POWDER)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S. (COPPER POWDER)
14.3 Transport Hazard Class(es)	9	9	9
14.4 Packing group	III	III	III
14.5 Environmental Hazards	Classified as hazardous	Classified as hazardous	Classified as hazardous
14.6 Special Precautions for user	(*)	EmS: F-A, S-F (*)	(*)
14.7 Transport in Bulk according to Annex II of Marpol73/78 and the IBC code	Not applicable	Not applicable	Not applicable
14.8 Labelling			
(*) – The transport, comprising charge and discharge, must be made by people who have been trained on 'Dangerous Goods Regulations'			

15. REGULATORY INFORMATION

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

The mixture is NOT subject to:

- Regulation (EC) n. Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29

June 2000 on substances that deplete the ozone layer;

- Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants;

- Regulation (EC) n. 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals.

15.2 Chemical Safety Assessment

Has been carried out for both copper and zinc.

16. OTHER INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Products covered by this data sheet include:

Flake Bronze Powder Coarse Grades:

Rich, Rich Pale and Pale Standard

Rich, Rich Pale and Pale Fine

Rich, Rich Pale and Pale Lining

Standard, Fine and Lining grades of Oxidised shades

Tarnish Resist grades with d50 of >10 μ m

(This list is not exhaustive)

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Laws and References

- **Directive 67/548/EEC and following updates and amends. (Directive on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances)**
- **Directive 2004/74/EC**

- **Regulation EC n. 1907/2006 (REACH)**

- **Regulation EC n. 2172/2008 (CLP)**

- **Regulation EC n. 790/2009**

- **Regulation EC n. 453/2010**

- **ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road) - IMDG Code (International Maritime Dangerous Goods Code).**

- **IATA (International Air Transport Association).**

- **SAX'S, (Dangerous Properties of Industrial Materials)**

- **ACGIH (2009) American Conference of Governmental Industrial Hygienists**

- **Copper Chemical Safety Report(CSR) 2010**

- **Zinc Chemical Safety Report(CSR) 2010**

- **Explosibility of Metal Powders, 1964. Authors: Murray Jacobson, Austin R. Cooper and John Nagy; researchers of the Bureau of Mines, Pittsburgh, Pa.**

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Changes to previous review: **The following sections were modified:**

01 / 09.