Wolstenholme Bronze Powders Limited

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MATERIAL SAFETY DATA SHEET MSDS38 (1st Revision)

1	PRODUCT NAME:	Gold Bronze Powders
2	COMPOSITION:	Copper 74-91% CAS No. 7440-50-8
		Zinc 16-9% CAS No. 7440-66-6
		Stearic acid CAS No. 57-11-4

3 PHYSICAL PROPERTIES:

3.1	Appearance:	Gold coloured powder
3.2	Odour:	Slight waxy/metallic odour
3.3	pH	N/A
3,4	Boiling point:	Approx. 2600°C
3.5	Melting point:	Approx. 1100°C
3.6	Flash point:	N/A
3.7	Flammability:	Will burn if ignited
3.8	Auto-flammability:	150°C
3.9	Explosive properties:	N/A
3.10	Oxidising properties:	N/A
3.11	Vapour pressure:	N/A
3.12	Density:	8.3-8.7g/cm³
3.13	Solubility:	Insoluble

4 FIRE FIGHTING PROCEDURES:

4.1	Extinguishing agents:	Dry sand is the most effective extinguishing agent. Water and foam may be used at low pressures.
4.2	Special fire fighting procedures:	Do not use pressurised extinguishers or high pressure water/foam.
4.3	Protection:	Wear self-contained breathing apparatus

5 REACTIVITY INFORMATION:

5.1	Stability:	Product is stable under normal conditio
5.2	Conditions to avoid:	Heat, sparks, open flames.
5.3	Materials to avoid:	Acetylene gas, bromates, chlorates, iodates, potassium dioxide.
5.4	Decomposition products:	Metal oxide, carbon dioxide, water.
5.5	Reaction with air:	Bronze flake when disturbed will form dust clouds.
5.6	Reaction with water:	None.
5.7	Reaction with heat:	Bronze flake can be ignited and will burn. They have a tendency to smolder rather than burn with a flame.
5.8	Reaction with halogenated compounds:	Reacts violently with some halogenated compounds.
5.9	Reaction with oxidising agents:	Bronze flake will react with oxidising agents.

6 TOXICOLOGICAL PROPERTIES:

Acute

Inhalation of bronze powder at high concentrations may cause symptoms similar to metal fume fever - influenza type symptons which will last for 24-48 hours.

Chronic

No effects known.

7 HANDLING AND STORAGE:

7.1	Handling:	Powder should be handled carefully to minimise dust creation. Wherever possible use closed system to contain the dust. Where manual powder handling is unavoidable use local exhaust ventilation. Ensure good standard of house-keeping. Powders deposited on surface will aid the spread of a fire.
7.2	Storage:	Keep containers closed, store in dry place at ambient conditions. Store away from sources of heat and open flames. Store away from incompatible substances

8	PROTECTIVE MEASURES:	As required by quantities handled.
8.1	Exposure standards:	Gold bronze powder (brass powder). Exposure standard not assigned. Recommend nuisance dust exposure standard 10mg/m³ 8 hour TWA
8.2	Ventilation:	Preferably local exhaust ventilation. Must be sufficient to keep concentratio below occupational exposure limit.
8.3	Respirator:	Personal respirator - cartridge/filter type can be used where adequate LEV cannot be supplied.
8.4	Gloves:	May be worn if handling large quantitie
8.5	Eye protection:	May be worn if handling large quantitie
8.6	Other measures:	Protective hand cream can be used to avoid possible skin irritation.
9	FIRST AID MEASURES:	
9.1	Eye contact:	Flush with copious amounts of water. If irritation persists seek medical attention.
9.2	Skin contact:	Wash with soap and water.
9.3	Inhalation:	Remove affected person from exposure, keep warm and quiet. Administer oxygen if required. Get medical help as situation dictates.
9.4	Ingestion:	Large quantity - not normally considere an industrial hazard. Seek medical attention.
10	SPILLAGE:	
10.1	Protection:	Remove all sources of ignition. Use suitable respiratory protection.
10.2	Environmental precaution:	Prevent material from entering drains/ sewers.
10.3	Cleaning:	Preferably use mechanical means - vacuum cleaner - where this is not possible carefully sweep up spilled material and transfer to suitable containers.

11 DISPOSAL:

11.1	Substance as supplied:	Material can be recycled.
11.2	Product packaging:	Can be re-used or recycled.
11.3	Finished products:	Products manufactured using bronze powder e.g. printed packages can be recycled.

12 CLASSIFICATION, PACKAGING, AND LABELLING: Not classified as hazardous. Requires no special labelling or packaging.

13 TRANSPORT: Not classified as dangerous for any mode of transport.

14 FURTHER INFORMATION: This information is based upon our current knowledge at the time of formulating this data sheet. Users should make their own investigation and research to determine the suitability of the information for their purposes.

Date of preparation: 19th February 1992

Prepared by:

RA Caughey
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Approved by:

D King
Product Development Manager

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MATERIAL SAFETY DATA SHEET (MSDS29) (2nd revision)

1 PRODUCT NAME: Flake Aluminium powder

2 HAZARDOUS PROPERTIES:

Aluminium 98%
CAS No. 7429-90-5

Exposure limit 15mg/m³ PSHA PEL
10mg/m³ ACHIH TLV-TWA
10mg/m³ OES (UK) (EH40/89

THIS PRODUCT IS DANGEROUS WHEN WET AND CAN FORM EXPLOSIVE MIXTURES WITH AIR. THE ENERGY RELEASED IN AN EXPLOSION IS EXTREMELY HIGH. (See Section 5)

3 PHYSICAL PROPERTIES:

3.1	Physical form:	Silver powder
3.2	Odour:	Slight waxy odour
3.3	Boiling point:	Not applicable
3.4	Vapour density:	Not applicable
3.5	Evaporation rate:	Not applicable
3.6	Specific gravity:	2.6
3.7	Solubility in water:	CONTACT WITH WATER MUST BE AVOIDED

4 FIRE AND EXPLOSION HAZARD:

4.1	Flash point:	Not applicable
4.2	Ignition point:	$\triangleq 250^{o}C$
4.3	Lower explosion limit:	30g/m³
4.4	Extinguishing agents:	In case of fire the best extinguishing agent is dry sand. Class D extinguishers with a low velocity nozzle may also be used/ Do not use halogenated hydrocarbo (See Section 5).
4.4	Special fire fighting procedures:	Emergency services must be notified

4.4 Special fire fighting	Aluminium powder will react with water to form Hydrogen gas. Hydrogen gas is flammable and explosive. When fighting an aluminium fire, it is best to isolat the fire by encircling it with dry sand or similar material, then leave it alon until it has cooled. Care must be taken as aluminium will continue to burn unde a crust without any flames.
5 REACTIVITY INFORMATION:	Material is stable under normal conditi Hazardous polymerisation will not occur
5.1 Conditions to avoid:	Smoking, open flames, heat, and any oth sources of ignition e.g. sparks from to and static electricity.
5.2 Materials to avoid:	Some acids, alkalis, halogenated hydro-carbons, and oxidising agents.
5.3 Decomposition products:	Metal oxide, carbon dioxide and water.
5.4 Reaction with air:	Aluminium powder suspended in air as a dust cloud or air conveyed in plant equipment can form explosive concentrat with air. A suitable source of ignitio in a concentration above the lower explosion limit will result in an explosion. Extreme care must be taken avoid the creation of dust clouds or hi concentrations in air conveyancing plan and equipment.
5.5 Reaction with water:	Aluminium will react with water to liberate hydrogen and heat; this reacti is normally slow and does not commence immediately. This will be particularly hazardous in confined spaces because of the pressure build-up and the possibili of an explosion. Hydrogen gas escaping under pressure will self-ignite.
5.6 Reaction with heat:	Aluminium flake can be ignited and will burn intensely and also as stated above, there is a risk of explosive dust cloud
5.7 Reaction with halogenated compounds:	Aluminium flake has in the past reacted violently with halogenated hydrocarbons.
5.8 Reaction with oxidising agents.	Aluminium powder will react with oxidisi agents exothermically. The stronger the oxidising agent, the more violent the reaction.
5.9 Handling:	Dust creation must be avoided. All equi ment must be constructed to minimise dust creation, all tools must be non-sparking, all parts of conveyance machinery should be thoroughly grounded and non sparking.

6 TOXICOLOGICAL PROPERTIES:

Acute

No toxic effects are known.

Chronic

May cause pulmonary fibrosis. Recommend periodic chest X-Ray.

7 PREVENTIVE MEASURES: As required according to quantities handled.

7.1 Ventilation: Local exhaust ventilation must be sufficient to keep concentrations below the occupational exposure standards. (See Section 5).

7.2 Respirator: Personl respirator - cartridge filter type - can be used where adequate local exhaust cannot be supplied.

7.3 Gloves: May be worn if handling large quantities.

7.4 Eye protection: May be worn if handling large quantities.

7.5 Other measures: Protective hand cream can be used to avoid possible skin irritation. This could be caused by excessive washing of the hands.

8 FIRST AID MEASURES:

8.1 Eye contact: Aluminium powder may be irritating to the eyes as any dust may be an irritant. Flush with plenty of water for 10 minutes. If irritation persists obtain medical advice.

8.2 Skin contact: No harmful effects have been recorded. Wash hands with mild soap and water and apply a good quality hand cream.

8.3 Inhalation: As with any finely divided powder aluminiu powder may cause irritation of the respiratory system. Remove affected personnel to fresh air. If unconscious keep breathing passages open. If breathing is irregular or has stopped, start resuscitation. Get medical help as situation dictates.

8.4 Ingestion: This may cause stomach pressure and nausea, give affected person copious amounts of a bland liquid such as milk - obtain medical advice.

9 SPILLAGE:

Small quantity

Carefully collect materialor place into a suitable container for disposal. Area can be washed with white spirit.

Large spillage

If the spillage results in the formation of a dust cloud evacuate the area immediately. Eliminate all sources of ignition. Allow the dust to settle befor commencing clean up. Use intrinsically safe vacuum cleaners. (See Section 5)

Transfer to suitable container for subsequent disposal.

10 DISPOSAL:

Disposal by recognised disposal company.

11 CLASSIFICATION:

Flammable solid

UN No.1309

Class 4.1

Packing Group II

12 FURTHER INFORMATION:

This information is based upon our curren knowledge at the time of formulating this data sheet. Users should make their own investigation and research to determine the suitability of the information for their purposes.

Date of preparation :15th January 1992

Prepared by:

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