



MATERIAL SAFETY DATA SHEET CUPROTECT GRANULES

1- IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product name: CUPROTECT GRANULES
Product no: CUPROTECT GRANULES
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2- COMPOSITION/INFORMATION ON INGREDIENTS

Name	Content	CAS-No	Classification
COPPER	Balance	7440-50-8	
IRON	~ 1.5%	7439-89-6	
MANGANESE	~ 0.2%	7439-96-5	
NICKEL	~ 10%	7440-02-0	Carc. Cat. 3; R40, R43

This is not a specification

3- HAZARDS IDENTIFICATION

POWDER FORM:
Hazard by inhalation, ingestion and skin and eye contact.

DUST AND FUME:
Thermal spraying of this material produces dust and fume.

COPPER: High toxicity, possible systemic effects and possible long term effects from dust/ fume. Delayed effect may be metal fume fever. May cause a greenish skin discolouration to the skin. If ingested will cause nausea, vomiting, abdominal pain and diarrhoea. Possible liver and kidney damage if ingested in large doses. Can also cause irritation and redness to the eyes. The respiratory system may suffer from muscle weakness. Headaches and the irritant effect of dust may be side effects.

IRON: Has a low toxicity but is irritating to the eyes and respiratory system. It may be harmful if inhaled as a dust/ fume in large doses.

MANGANESE:
Ingestion- Causes abdominal pain, nausea.
Eyes- Causes damage to eyes if not adequately protected by glasses or goggles.
Skin- May cause damage to skin if not protected.
Respiratory- Causes shortness of breath and coughing. Long term effects: Metal fume fever may develop within the respiratory system.
Central Nervous System- Parkinsonism, delayed hallucinations may occur as a result of neurological disorders if an employee has prolonged exposure to manganese. The material has been found to cause cancer in laboratory animals.



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NICKEL:

Hazard by inhalation and skin contact. Inhalation may cause cancers of the lung and nasal sinuses. Skin contact may cause dermatitis and in some people it is a skin sensitizer.

Signs and symptoms of over exposure:

Eye contact: Irritation and redness
Skin contact: Redness, dermatitis, sensitisation
Ingestion: Irritation and diarrhoea
Inhalation: Irritation, cough, shortness of breath, pneumonitis

4- FIRST-AID MEASURES

INHALATION

Expose to fresh air. Consult doctor if irritation or respiratory distress persists. Sickness and fever (metal fume fever) influenza type symptoms which last for 24 – 48 hours, may be a delayed effect.

INGESTION

Wash out mouth thoroughly with water. If swallowed, obtain medical attention. Can cause abdominal pain, vomiting and diarrhoea.

SKIN CONTACT

Wash with soap and water.

EYE CONTACT

Flush eye with water. Consult doctor if irritation persists.

5- FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Use class D fire extinguisher and treat as a metallic fire.

SPECIFIC HAZARDS

DO NOT use other fire extinguisher types as hazardous reactions may occur. Moderate fire hazard in the form of dust when exposed to flame.

6- ACCIDENTAL RELEASE MEASURES

Vacuum loose powder only with vacuums equipped with HEPA filtration. Vacuums appropriate for use with metallic dust should be utilised. Wipe the area clean. Do not use water for clean up operations. Do not sweep.

7- HANDLING AND STORAGE

HANDLING

Safety precautions are necessary when unpacking product and handling to avoid respiratory, eye and skin hazards.

STORAGE

Store inside a dry, well ventilated building. Keep away from incompatible materials. Store in a manner to minimise punctures and breakage of containers.

During thermal spraying dust and fumes are liberated from a high temperature/ velocity stream of molten particles. Precaution measures include local exhaust ventilation, acoustic enclosure and avoidance of injury and fire from spray stream. An enclosed automated system isolating the operator is recommended.



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8- EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES:

Engineering measures should always be taken before personal protection equipment is necessary. Thermal spraying of the product should be with appropriate local exhaust ventilation. The thermal spraying process should ideally, be automated and contained in an acoustic enclosure, isolating the operator from the hazard area. Reference should be made to the relevant BSA process and safety manuals along with HSE guidance note EH 54 and EH 55. (See section 15 for occupational exposure limits)

If adequate control by means described above is not reasonably practicable, then personal protection will be required.

Respiratory protection: Suitable respiratory protective equipment (RPE) conforming to a standard approved by HSE (NIOSH/MSHA) to protect against fumes and dust from spraying and subsequent operations.

Eye protection: Safety glasses are required for general handling of the powder. When plasma spraying, a face shield suitable for protection against ultraviolet radiation is necessary, a grade 9 lens is recommended for power levels up to 40kW. Power levels above 40kW will require higher grade lenses. For combustion spraying a grade 5 lens is recommended. (USA use NIOSH/MSHA approved)

Hand protection: Gloves are required for protection against excessive skin contact when handling the powder. Aluminised gloves are required when plasma spraying for protection against uv radiation and heat.

Skin protection: Aluminised apron is recommended for protection against uv radiation and heat.

Ear protection: Ear defenders are required during spraying operation.

9- PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Metallic powder
ODOUR	None
SOLUBILITY	Insoluble in water and oil.
BULK DENSITY	N/A
MELTING POINT (°C)	1250 approx
EXPLOSIVE PROPERTIES	Dust cloud in air can, in certain cases form explosive mixtures.

10- STABILITY AND REACTIVITY

This material is stable.

Materials to avoid: Acids, alkalis, oxidisers

Pyrophoric in finely divided form

11- TOXICOLOGICAL INFORMATION

Copper is highly toxic in finely divided form.

Iron has a low toxicity.

Manganese is regarded as highly toxic. Possible systemic and long term effects.

Nickel is regarded as highly toxic. Inhalation may cause cancers of the lung and nasal sinuses. Nickel is known to cause skin sensitisation in some people.



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12- ECOLOGICAL INFORMATION

Unlikely to pose a major environmental hazard. Will smother organisms on ground surfaces, lake and riverbeds.

13- DISPOSAL CONSIDERATIONS

This material should be recycled. Disposal methods should be in accordance with governmental regulations.

14- TRANSPORT INFORMATION

This product is not classified as dangerous for conveyance by road in the UK.

15- REGULATORY INFORMATION

'CHIP 3' Hazard Labelling Classification

Risk Phrases: 40, 43

Safety phrases: 22, 36

R40 Possible risk of irreversible effects

R43 May cause sensitisation by skin contact

S22 Do not breathe dust

S36 Wear suitable protective clothing

OCCUPATIONAL EXPOSURE LIMITS: EH40

Ingredient	OES: 8-Hr TWA (mg m-3)	OES.STEL 15- min (mg m-3)
Copper	0.2 (fume) 1 (dusts)	2 (mists)
Iron	5	10
Manganese	5.0	
Nickel	0.5 (MEL)	
Thermal decomposition products of process (independent of product)		
Nitric Oxide	30	45
Ozone	0.2	0.6

OCCUPATIONAL EXPOSURE LIMITS FOR USA

Ingredient	Form	OSHA/PEL (mg m-3)	ACGIH/TLV (mg m-3)
Copper	As dust	1.0	1.0
	As fumes	0.1	0.2
Iron	Pel-iron, oxide fumes	10.0	5.0 (TLV as Fe)
Manganese	As dust	5.0	2.0
	Fume	1.0	1.0
	Fume (STEL)	3.0	3.0
Nickel	Metal	1.0	1.0



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The information contained in this safety data sheet does not constitute the users own assessment of workplace risks as required by other USA and European Health and Safety Legislation. (HSWA, COSHH and the Management of Health and Safety at Work Regulations)

16- OTHER INFORMATION

Training in the safe use of thermal equipment and reference to the relevant safety instructions contained in the equipment manuals are very important to health and safety.

The information contained in this safety data sheet is based on available data and tests and is believed to be accurate. It is prepared solely for consideration and verification since conditions of use, storage and handling may vary.

SOURCES

1. Croners – Substances Hazardous to Health
2. Croners – Hazard Information and Packaging
3. BDH – Hazard Data Sheets
4. EH40 – Occupational Exposure Limits
5. Internet – Various

DISCLAIMER

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 process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.