Copper-Phosphorus-Tin-Nickel Alloys

Material Safety Data Sheet

1. Product and Company Identification

Suppliers and Manufacturers

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Emergency Phone Number

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Issue Date: 03/06/2012
Product Name: Copper-Phosphorus-Tin-Nickel Alloys
MSDS Number: 269

Product Codes: 40-053; 69-021; 69-024; 69-028; 69-034; 69-054; 70-756.

WARNING: These products contain a chemical(s) known to the State of California to cause cancer.

2. Composition/Information on Ingredients

Ingredient Name	CAS Number	%
Copper	7440-50-8	76-86
Nickel	7440-02-0	1-11
Phosphorus	7723-14-0	5-8
Tin	7440-31-5	3-16

3. Hazards Identification

Primary Routes(s) of Entry

Ingestion; inhalation.

Eye Hazards

Eye contact with these products in finely divided forms may cause irritation, conjunctivitis, and/or ulceration of the cornea

Skin Hazards

Skin contact with these products, particularly in finely divided forms, may cause irritation, discoloration, and contact and/or allergic dermatitis.

Ingestion Hazards

Ingestion of this product may cause nausea, vomiting, and gastrointestinal irritation.

Inhalation Hazards

Inhalation of the components of these products is not known to present a significant risk to health when used according to instructions and with appropriate protective measures (see Section #8). Inhalation of component elements has been reported to cause one or more of the following symptoms and effects upon excessively high or prolonged exposure.

COPPER: Acute exposure may cause respiratory tract irritation, fever, muscle ache, chills, cough, weakness, and a metallic taste.

NICKEL: Acute exposure to nickel may cause headache, nausea, vertigo, and pulmonary edema. Chronic exposure may increase the risk of cancer to the nasopharynx, lungs, prostate, and kidney.

PHOSPHORUS: The red form of phosphorus is stable and relatively non-toxic at room temperature. When heated in the presence of air, it may be converted to phosphorus pentoxide, which is corrosive and irritating to the eyes, nose throat, and mucous membranes.

TIN: Exposure to tin dust or fume can cause stannosis (a benign pneumoconiosis), shortness of breath, and respiratory tract irritation.

4. First Aid Measures

Eye

Flush affected areas with water for at least fifteen minutes. Seek medical assistance if necessary.

Skin

Remove contaminated clothing. Wash affected area with large quantities of water for at least five minutes. Seek medical attention if necessary. Launder or dry-clean clothing before reuse.

Ingestion

If subject is conscious, induce vomiting. Obtain medical assistance. Do not attempt to give anything by mouth to an unconscious or convulsive person.

Inhalation

If signs and symptoms of toxicity are observed, remove subject from area, administer oxygen, and seek medical attention. Keep the subject warm and at rest. Perform artificial respiration if breathing has stopped.

Note to Physician

None of the components are acutely toxic by ingestion, nor are they absorbed through the skin. Extensive or prolonged skin contact may cause contact or allergic dermatitis.

5. Fire Fighting Measures

Flash Point: Not Applicable (N/Appl.)
Autoignition Point: N/Appl.
Flammability Class: N/Appl.
Lower Explosive Limit: N/Appl.
Upper Explosive Limit: N/Appl.

Fire and Explosion Hazards

In finely divided form, these products may ignite when exposed to flame or by reaction with incompatible materials (see Section #10). If present in a fire or explosion, they may emit fumes of the constituent metals or metal oxides and/or phosphorus pentoxide.

Extinguishing Media

Use dry chemical. Do not use water.

Fire Fighting Instructions

If fighting a fire in which these products are present, wear a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

6. Accidental Release Measures

If a finely-divided form of product is spilled, clean up spillage in a manner That minimizes dispersion of product. Wet sweeping or vacuuming with HEPA filtration are recommended.

7. Handling and Storage

Handling Precautions

No special precautions are required.

Storage Precautions

Do not store in proximity to incompatible materials (see Section #10).

Work/Hygienic Practices

To minimize ingestion, wash hands and face before eating, drinking, applying cosmetics, or using tobacco.

8. Exposure Controls/Personal Protection

Engineering Controls

Use appropriate ventilation (e.g., dilution, local exhaust) adequate to maintain concentrations of all components and their byproducts to within their applicable standards.

Eye/Face Protection

Wear eye protection adequate to prevent eye contact with finely-divided product and eye injury if product is used with a flame. Plastic-frame spectacles with side shields and filter lenses (shade #3/#4) are recommended.

Skin Protection

Wear appropriate protective gloves and clothing to prevent skin injury if Product is used with a flame and/or for prolonged or repeated contact with finely-divided forms of product. Avoid flammable fabrics.

Respiratory Protection

If an exposure level exceeds an applicable exposure standard, use a NIOSH-approved respirator having a configuration (type of facepiece, filter media, assigned protection factor, etc.) appropriate to the concentration of the contaminant(s) generated. For guidance on selection and use of respirators, consult American National Standard Z88.2 (ANSI, New York, NY 10036 USA).

Ingredient(s) - Exposure Limits

Copper
    ACGIH TLVs: 0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists)
    OSHA PELs: 0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists)
Nickel
    ACGIH TLV: 1.5 mg/m3 TWA OSHA PEL: 1 mg/m3 TWA
Phosphorus
    No applicable ACGIH TLV(s) No applicable OSHA PEL(s)
Tin
    ACGIH TLV: 2 mg/m3 TWA OSHA PEL: 2 mg/m3 TWA

9. Physical and Chemical Properties

Appearance: light yellow metals, various forms
Odor: none
Chemical type: alloys
Physical state: solid
Specific gravity: 8.4-8.9
Solubility (H2O): insoluble

Other physical properties (odor threshold, evaporation rate, vapor pressure, vapor density, boiling point, freezing point, viscosity, oil-water partition coefficient, percent volatiles, percent VOCs) are not applicable to these products.

10. Stability and Reactivity

Stability: stable
Hazardous Polymerization: will not occur

Conditions to Avoid

Copper can form an unstable acetylide in contact with acetylene gas.

Incompatible Materials

Strong oxidizers; ammonium nitrate; inorganic and organic peroxides; sulfur; chlorates, bromates, and iodates of alkali and alkali earth metals; halogens; hydrazine; hydrazoic acid; performic acid; selenium; dioxane; titanium plus potassium perchlorate; bromine and chlorine trifluorides; cupric nitrate.

Hazardous Decomposition Products

Heating to elevated temperatures may liberate metal/metal oxide fumes and/or phosphorus pentoxide.

11. Toxicological Information

Reproductive Effects

Nickel has produced fetotoxic and teratogenic effects in animal studies.

Mutagenicity

Nickel has produced mutagenic responses in mammalian cell cultures.

Conditions Aggravated By Overexposure

Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation overexposure, particularly as fume. Chronic overexposure by inhalation and/or ingestion may aggravate pre-existing diseases of the liver, kidneys, gastrointestinal system, and nervous system.

Ingredient(s) - Carcinogenicity

Nickel
- Listed on the National Toxicology Program
- Listed in the IARC Monographs

Ingredient(s) - Toxicological Data

Copper		
	LD50: No data available	LC50: No data available
Nickel		
	LD50: 5,000 mg/kg (oral/rat)	LC50: No data available
Phosphorus		
	LD50: No data available	LC50: No data available
Tin		
	LD50: No data available	LC50: No data available

12. Ecological Information

In their intended manner of use, these products should not be released into the environment, and adverse effects on ecosystems are not anticipated under recommended conditions of use, storage, and disposal.

13. Disposal Considerations

Dispose of unused or unusable product in accordance with applicable Federal, State/Provincial, and local regulations.

14. Transport Information

These products are not Hazardous Substances or Dangerous Goods per USDOT, TDG (Canada), IATA, or IMO regulations.

15. Regulatory Information

TSCA Information

All components of these products are listed in the EPA's TSCA inventory.

SARA Hazard Classes

Acute Health Hazard; Chronic Health Hazard

Ingredients - U.S. Regulatory Information

SARA Section 313 Notification: This product contains these ingredients in concentrations greater than 1% (for carcinogens 0.1%) regulated under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 or 40 CFR 372.

Copper (CASRN 7440-50-8)
Nickel (CASRN 7440-02-0)
Phosphorus (CASRN 7723-14-0)

Ingredients - State Regulations

Nickel: California Proposition 65 listed chemical

Canadian Regulatory Information

All components of these products are listed on the Domestic Substances List (DSL) or the Nondomestic Substances List (NDSL).
WHMIS Class(es) and Division(s): D2A, D2B
Component(s) on Ingredients Disclosure List:

1. Copper, elemental (CASRN 7440-50-8)
2. Nickel, elemental (CASRN 7440-02-0)
3. Phosphorus (CASRN 7723-14-0)
4. Tin, elemental (CASRN 7440-31-5)

16. Other Information

HMIS Ratings

Health - 2* Flammability - 1 Physical Hazard - 0 PPE - see Note

Note: Lucas-Milhaupt, Inc. and Handy & Harman of Canada, Ltd. recommend use of safety glasses and protective gloves (Personal Protection Index "B") as standard PPE. HMIS recommends that its ratings be used only in conjunction with a fully implemented HMIS program, and that specific PPE codes be created

by the user, who is familiar with the actual conditions under which the product is used. We cannot anticipate every condition of the product's use, and it is the user's responsibility to evaluate the hazards pertinent to its specific operations, and to determine the specific PPE required.

NFPA Ratings

Health - 2 Flammability - 1 Reactivity - 0

Revision Information

This MSDS supersedes a previous MSDS dated 10/10/2006.

Disclaimer

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Lucas Milhaupt, Inc. Handy & Harman of Canada, Ltd.