



Fisk Alloy Wire

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Tin Plated Phosphor Bronze Alloy
Chemical Name: Metal Alloy
Synonyms: Plated Copper Tin Alloys, Alloy Nos. C50500, 50700, C51000, C51900, C52100
Chemical Family: Plated Copper Alloy
Formula: Not applicable - mixture
Product Use: Metallurgical Products

Company Address: Fisk Alloy Inc., 10 Thomas Road, P.O. Box 26, Hawthorne, NJ 07507, USA

MSDS Issue Date: January 2010

Technical Information:

Call Fisk Alloy at: (973) 427-7550 www.fiskalloy.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	Components	Weight %	EINECS/ ELINCS	EU Classification	
				Symbol	R-Phrase
7440-50-8	Copper	90 – 99	231-159-6	None	None
7440-31-5	Tin	1 – 9	231-141-8	None	None
7440-02-0	Nickel	0 – 3	231-111-4	Xn	R 40/43

OSHA Regulatory Status: In solid form, not hazardous. Dust or fume: carcinogen, irritant, lung and respiratory system toxicant, neurotoxicant, sensitizer

3. HAZARDS IDENTIFICATION

WARNING!
EXPOSURE TO DUST OR FUMES CAN CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. EXPOSURE TO DUST OR FUMES CAN CAUSE RESPIRATORY SYSTEM DAMAGE. CONTAINS A MATERIAL WHICH MAY CAUSE NERVOUS SYSTEM EFFECTS. MAY CAUSE AN ALLERGIC SKIN AND/OR RESPIRATORY REACTION. CONTAINS MATERIALS WHICH MAY CAUSE CANCER. USE ONLY WITH ADEQUATE VENTILATION. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

HAZARD RATINGS (for dust or fume)

Degree of hazard (0 = low, 4 = extreme)

Hazardous Materials Identification System (HMIS): Health: 2* Flammability: 0 Physical Hazard: None
National Fire Protection Association (NFPA): Mixture. Not rated.

HUMAN THRESHOLD RESPONSE DATA

Odor Threshold: Unknown

Irritation Threshold: Unknown

Immediately Dangerous to Life or Health (IDLH) Value(s): The IDLH for this product is not known. The IDLH for copper and tin is 100 mg/m³. The IDLH for nickel is 10 mg/ m³.

POTENTIAL HEALTH EFFECTS

ACUTE EFFECTS

Eye: Dust or fume can cause irritation consisting of redness, swelling, and pain. May cause conjunctivitis with repeated exposures.

- Skin:** Material not expected to be absorbed through the skin. Contact with dust may cause mild irritation consisting of redness and/or swelling.
- Inhalation:** Harmful if inhaled. Inhalation of high concentrations of powder, dust, or fume may cause severe respiratory and nasal irritation, coughing, and difficulty breathing. Inhalation of high concentrations of metallic copper dusts or fumes may cause nasal irritation and/or nausea, vomiting and stomach pain.
- Ingestion:** Ingestion of large amounts of dust may cause nausea, diarrhea and or stomach pain.

CHRONIC EFFECTS:

Prolonged or repeated skin contact with dust may cause severe irritation or dermatitis. Repeated dermal exposure may also cause an allergic skin reaction consisting of itching, redness, swelling, and rash or urticaria (hives) in sensitized individuals. Prolonged or repeated inhalation of dust or fume may cause an allergic type of asthma characterized by wheezing, coughing, and breathing difficulty in sensitized individuals. Epidemiological studies in humans have shown an association between lung cancers and prolonged occupational exposures to high concentrations of nickel.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Exposure to dust or fume may aggravate an existing dermatitis, asthma, emphysema, or other respiratory disease.

POTENTIAL ENVIRONMENTAL EFFECTS: None known. Product has not been tested for environmental properties.

4. FIRST AID MEASURES

EYE CONTACT:

Immediately flush out fume and dust particles with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If eye irritation develops, call a physician at once.

SKIN CONTACT:

If exposed to dust or fumes, wash skin with plenty of water. Remove contaminated clothing and shoes and launder before reuse. If skin irritation or rash develops and persists or recurs, get medical attention.

INHALATION:

If symptoms of lung irritation occur (coughing, wheezing or breathing difficulty), remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention.

INGESTION:

Not a likely route of exposure for finished metal alloy. If dust is ingested, immediately drink water to dilute. Consult a physician if symptoms develop.

NOTE TO PHYSICIANS:

There is no specific antidote to the active ingredients in this product; use symptomatic treatment.

5. FIRE FIGHTING MEASURES

<u>PROPERTY</u>	<u>VALUE</u>
Explosive	No
Flammable	No
Combustible	No
Pyrophoric	No
Flash Point (°C):	Not applicable
Burning Rate of Material:	Not applicable
Lower Explosive Limit:	Not applicable
Autoignition Temperature:	Not applicable
Upper Explosive Limit:	Not applicable
Flammability Classification (Defined by 29 CFR 1910.1200):	Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: Dust may cause an ignitable and/or an explosive atmosphere.

EXTINGUISHING MEDIA: For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash. Use fire-extinguishing media appropriate to fight surrounding fire.

SPECIAL FIREFIGHTING PROCEDURES: None required.

6. ACCIDENTAL RELEASE MEASURES

In dust form, this product may be an explosion hazard. Remove all sources of ignition. Dust or fume may be suppressed by the use of a local exhaust system. Dispose of per guidelines under Section 13, WASTE DISPOSAL.

7. HANDLING AND STORAGE

HANDLING: Avoid dispersion of dust in air.

STORAGE:

Shelf Life Limitations: None known.

Incompatible Materials for Packaging: None known.

Incompatible Materials for Storage or Transport: None known.

OTHER PRECAUTIONS: Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or HEPA vacuuming.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	CHEMICAL NAME	ACGIH TLV	OSHA PEL	INTERNATIONAL OELS
7440-50-8	Copper	0.2 mg/m ³ (fume), 1 mg/m ³ (dusts and mists)	0.1 mg/m ³ (fume) 1 mg/m ³ (dusts and mists)	Austria, Belgium, Canada: 0.2 mg/m ³ (fumes), 1 mg/m ³ (dusts); Denmark: 1.0 mg/m ³ (dust and powder); Germany (MAK): 0.1 mg/m ³ (fume), 1 mg/m ³ (dusts and mists)
7440-31-5	Tin	2 mg/m ³	2 mg/m ³	U.K. (LTEL): 5 mg/m ³ ; Austria & Germany (MAK), Belgium, Finland, Denmark, The Netherlands, Poland, Switzerland: 2 mg/m ³ ; Hungary, Norway: 1 mg/m ³
7440-02-0	Nickel	0.2 mg/m ³ (Inhalable)	1 mg/m ³	Germany(MAK): 1 mg/ m ³ (Sah) Canada (B.C.), Czechoslovakia, Denmark, Norway: 0.05 mg/m ³ , K1, sensitizer Poland: 0.25 mg/m ³ Ireland, Sweden, Switzerland, U.K.: 0.5 mg/m ³ Belgium, Canada (Alberta & others), Finland, Japan, Mexico, Netherlands: 1 mg/m ³ Portugal: 1.5 mg/m ³

ENGINEERING CONTROLS: Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation.

EYE / FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Wear impervious (cut-resistant) gloves and other protective clothing. If generating a dust, wash thoroughly after handling, especially before eating, drinking, or smoking.

RESPIRATORY PROTECTION: Respiratory protection not normally needed. If dusting occurs or fumes are generated above the PEL/TLV, use a NIOSH-approved half-face or full-face respirator equipped with High Efficiency Particulate (HEPA) filter cartridges.

GENERAL HYGIENE CONSIDERATIONS: Do not eat, drink, or smoke while using this product in dust form.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value	Property	Value
Appearance	Silver Metallic	Vapor Density (air = 1)	Not Applicable
Odor	None	Boiling Point	No Data
Molecular Weight	Not Applicable – Mixture	Melting Point	L: 1020-1075 °C (1880-1970 °F); S : 880-1035 °C (1620-1900 °F)
Physical State	Solid	Specific Gravity	8.84 (g/cc)
pH	Not Applicable	Bulk Density	8.84 (g/cc)
Vapor Pressure (mm Hg)	Not Applicable	Viscosity (cps)	Not Applicable

Vapor Density	Not Applicable	Decomposition Temp.	Not Applicable
Solubility in Water (20°C)	Negligible	Evaporation Rate	Not Applicable
Volatiles, Percent by Volume	Not Applicable	Octanol/Water Partition Coefficient	Unknown

10. STABILITY AND REACTIVITY

STABILITY:

Stable under normal temperatures and pressure.

CONDITIONS TO AVOID:

Not affected by mechanical impact or shock or by electrical discharge.

MATERIALS TO AVOID:

Acetylene, chlorine

HAZARDOUS DECOMPOSITION PRODUCTS:

When heated to decomposition, may produce metal oxides and fumes. Inhalation of high concentrations of metal fumes may cause a condition known as “metal fume fever” which is characterized by flu-like symptoms.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. TOXICOLOGICAL INFORMATION

POTENTIAL EXPOSURE ROUTES: For dust: ingestion, inhalation, and eye contact. For fume: inhalation and eye contact. The finished alloy metal is not hazardous.

ACUTE ANIMAL TOXICITY DATA:

	For Product (dust or fume)	For Component		
		Copper	Tin	Nickel
Oral LD ₅₀	Believed to be moderately toxic	3.5 mg/kg (mouse, intra-peritoneal)	No data	> 5 g/kg (rat)
Dermal LD ₅₀	Believed to be > 2 g/kg	375 mg/kg (rabbit, subcutaneous)	No data	> 7.5 g/kg (rabbit, subcut)
Inhalation LC ₅₀	Believed to be slightly to moderately toxic	No Data	No data	> 12 mg/kg (rat, It)
Irritation	Eye and respiratory irritant	Respiratory irritant	No data	Resp. Irritant
Sensitization	No data			Skin sensitization

SUBCHRONIC/ CHRONIC TOXICITY: No information for product.

CARCINOGENICITY: In laboratory animal studies, chronic exposure to high concentrations of nickel has caused an increase in lung and nasal tumors. The International Agency for Research on Cancer (IARC) has classified nickel as possibly carcinogenic to humans, Group 2B

MUTAGENICITY: This product is not known or reported to be mutagenic. Nickel has been shown to be mutagenic in *in vitro* studies.

REPRODUCTIVE, TERATOGENICITY OR DEVELOPMENTAL EFFECTS: This product is not known or reported to cause reproductive or developmental effects. Exposure of male rats to high concentrations of nickel caused testicular degeneration. However, symptoms of systemic toxicity, including severe weight loss, were also observed at the same concentrations indicating that the testicular effects may have been secondary to frank toxicity.

NEUROLOGICAL EFFECTS: This product is not known or reported to cause neurological effects.

INTERACTIONS WITH OTHER CHEMICALS THAT ENHANCE TOXICITY: None known or reported.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: No data is available on this product. Individual constituents are as follows:

Copper: The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with the physical and chemical characteristics of the water, such as its temperature, hardness, turbidity and carbon dioxide content. Copper concentrations varying from 0.1 to 1.0 mg/l have been found by various investigators to be not toxic for most fish. However, concentrations of 0.015 to 3.0 mg/l have been reported as toxic, particularly in soft water to many kinds of fish, crustaceans, mollusks, insects, and plankton.

Nickel: 96 hr LC50, rainbow trout = 31.7 mg/L; 96 hr LC50, fathead minnow = 3.1 mg/L; 72 hr EC50, freshwater algae (4 species): = 0.1 mg/L; 96 hr LC50, *Daphnia* = 0.51 mg/L.

MOBILITY: No data.
PERSISTANCE/DEGRADABILITY: Not biodegradable.
BIOACCUMULATION: No data.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D. Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes. This product may be a candidate for metal reclamation.

14. TRANSPOT INFORMATION

	U.S. DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
Proper Shipping Name	Not regulated					
Hazard Class						
UN No.						
Packing Group						
Label						
Reportable Quantity						

15. REGULATORY INFORMATION

US FEDERAL

TSCA	The components of this product are listed on the Toxic Substance Control Act inventory.				
CERLA	Copper, R.Q. = 5000 lbs.; Nickel, R.Q. = 100 lbs.				
SARA 313	Copper, Nickel				
SARA 313 Hazard Class	Health: For dust or fume only	Acute: Yes Chronic: Yes	Fire: None	Reactivity: None	Release of Pressure: None
SARA 302 EHS List	None of the components of this product are listed.				

* R.Q. = Reportable Quality.

STATE RIGHT TO KNOW STATUS

Component	CA Prop. 65*	New Jersey	Pennsylvania	Massachusetts	Michigan
Copper	Not listed	X	X	X	X
Tin	Not listed	Not listed	X	X	Not listed
Nickel	X	X	X	X	X

* “WARNING: This product contains detectable amounts of a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm.”

EUROPEAN REGULATIONS

This material does not contain elements classified as Xn, Harmful. This material in its solid form is not required to be labeled under EC regulations.

German WGK Classification: Unknown

CANADIAN REGULATIONS

- DSL LIST: The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.
- IDL: Copper, Tin, Nickel
- WHMIS: This product is considered to be a manufactured article and therefore not subject to WHMIS requirements.

16. OTHER INFORMATION

*This document is based on information obtained from Olin Brass, 427 North Shamrock St. East Alton, IL 62024-1197, MSDS-B10 and 00015.0001. **EMERGENCY TELEPHONE NUMBER: 1-618-258-5167.** For additional information visit www.olinbrass.com*

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