



SAFETY DATA SHEET

Product Name: Cupro-Nickel Tube products 706, 710, 715

Revision Date: April 7, 2011

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Section 1: Product and Company Identification

Product Names: 706 Cupro-Nickel Tube Copper-Nickel (90/10)
 710 Cupro-Nickel Tube Copper-Nickel (80/20)
 715 Cupro-Nickel Tube Copper-Nickel (70/30)

Product Use: Metal tube products – various consumer, construction and manufacturing uses

Chemical Family: Copper-Nickel-Zinc Alloy

Product Codes: UNS C74000, C75200

Supplier: Small Tube Products
 200 Oliphant Drive,
 PO Box 1017,
 Duncansville, PA, USA
 16635
 Tel: 814-693-6000 (8 am – 5 pm; Mon-Fri; Eastern time zone)
www.smalltubeproducts.com

Section 2: Hazards Identification

| Personal Protection | OSHA (USA) | WHMIS (Canada) | Transport Symbol |
|---------------------|---------------------------------------|--|--------------------------------|
| | Manufactured article Not hazardous | Manufactured Article Not controlled | Not Regulated for Transport |

Emergency Overview: Solid copper alloy tube products do not present an inhalation, ingestion, or contact health hazard. Metallic dust and fumes generated from operations such as cutting, grinding, high temperature processes or other machining, have potential health hazards which are listed in this section.

Appearance, Color and Odor: Solid metal tubes and shapes, silver-red metallic color, odorless.

USA: As sold, the solid manufactured article is not considered hazardous. Metallic dust or fume, which may be generated during use of these products, is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Canada: As sold, the solid manufactured article is not controlled. Exposure to metallic dust or fume, which may be generated during use of these products, is controlled under WHMIS.

Potential Health Effects **ACUTE (short term): see Section 8 for exposure controls**

Relevant Route(s) of Exposure: Inhalation of dust or fume, skin and eye contact.

- Inhalation:** Overexposure to dust or fume may cause coughing, shortness of breath, respiratory tract irritation, nasal septum perforation, congestion of the mucous membranes, lung damage and/or metal fume fever. The symptoms of metal fume fever typically appear several hours after exposure and are associated with any combination of the following symptoms; dry throat, cough, chills, fever, headache, chest tightening, shortness of breath, metallic taste, vomiting and fatigue.
- Ingestion:** Ingestion of large amounts of metallic dust may cause a metallic taste, gastro-intestinal discomfort with nausea, vomiting and diarrhea.
- Skin:** Overexposure to this material in the form of dust may cause irritation with dermatitis. May cause an allergic skin reaction due to presence of Nickel dust. Contact with the heated product will cause thermal burns to the skin.
- Eye:** Overexposure to this material in the form of dust may cause irritation as a "foreign object". Fumes may be irritating to the eyes. Repeated occupational exposures to dust and fumes may cause conjunctivitis.



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Section 2: Hazards Identification, continued

CHRONIC (long term): see Section 11 for additional toxicological data

Exposures to inhalable size particles of airborne dust containing Nickel is suspected of causing cancer by inhalation. Causes damage to the respiratory tract through prolonged or repeated exposure by inhalation (particles under 0.1 mm diameter).

Long-term over-exposure by inhalation of metallic dusts and fumes may cause chronic obstructive lung disease, rhinitis and/or bronchitis. Long-term over-exposure by inhalation of dusts may lead to fibrosis.

Prolonged or repeated exposure to copper fume can discolor skin and hair. Long-term over-exposure by ingestion may damage the liver and kidneys.

Chronic exposures to low levels of Lead from dust and fume may lead to accumulation of Lead in the body. Chronic exposures to Lead can cause adverse reproductive and developmental effects and may affect the GI tract, Central Nervous System (CNS), kidneys, blood, gingival tissue and eyes.

Medical Conditions Aggravated by Exposure:

Overexposure to this material in the form of metallurgical dust is hazardous to health. Pre-existing pulmonary and skin conditions such as emphysema, asthma, bronchitis and dermatitis may be aggravated by exposure to this material. Individuals with "Wilson's disease", a rare condition that interferes with the body's ability to eliminate copper, should consult a physician before exposures to copper dusts and fumes.

Interactions With Other Chemicals:

See Section 10

Potential Environmental Effects:

Prevent the release of waste metals into the environment.

Section 3: Composition / Information on Ingredients

Hazardous Ingredients:

| <u>Chemical Name</u> | <u>CAS No.</u> | <u>Wt. %</u> |
|----------------------|----------------|--------------|
| Copper (includes Ag) | 7440-50-8 | 63 - 91 |
| Nickel (includes Co) | 7440-02-0 | 9 - 33 |
| Zinc | 7440-66-6 | 0 - 1 |
| Manganese | 7439-96-5 | 0 - 1 |
| Iron | 7439-89-6 | 0 - 1.8 |
| Lead | 7439-92-1 | 0 - 0.05 |

Section 4: First Aid Measures

- Inhalation:** If high airborne concentrations are present, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical advice.
- Eye Contact:** Do not allow victim to rub eye(s). Let the eye(s) water naturally for a few minutes. Have victim look right and left, and then up and down. If particle does not dislodge, flush with lukewarm, gently flowing water for 15 minutes or until particle is removed, while holding the eyelid(s) open. If irritation persists, obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye(s).
- Skin Contact:** No health effects expected. If irritation occurs, gently brush away dust particles quickly. Wash gently and thoroughly with lukewarm water and non-abrasive soap for 5 minutes. If irritation persists, obtain medical advice.
- Ingestion:** If dust is swallowed, obtain medical advice or contact a Poison Control Center.



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Section 5: Fire Fighting Measures

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| Flammable Properties: | This product is not flammable. Under rare conditions, finely divided powder or dust from machining may be considered to be a fire and explosion hazard in the presence of high temperatures or ignition sources. |
| Suitable extinguishing Media: | Use water or other extinguishing media appropriate for the surrounding fire. |
| Unsuitable extinguishing Media: | Not available |
| Explosion Data | |
| Sensitivity to Mechanical Impact: | Not sensitive |
| Sensitivity to Static Discharge: | Not sensitive |
| Specific Hazards arising from the Chemical: | During a fire, the product may release fumes of the component metals and toxic metal oxide fumes. |
| Protective Equipment and precautions for firefighters: | As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. |

Section 6: Accidental Release Measures

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| Personal Precautions: | Wear proper personal protective equipment as indicated in Section 8. |
| Environmental Precautions: | Prevent material from contaminating soil and from entering sewers or waterways. |
| Methods for Containment: | No special methods required. |
| Methods for Clean-up: | Scoop or shovel spilled material into an appropriate waste container for recycling or disposal. For dust, use a vacuum with appropriate filters or a wet method to reduce airborne dust during clean-up; do not dry sweep. |

Section 7: Handling and Storage

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| Storage Conditions: | Product should be stored in a clean, dry area. |
| Handling Precautions: | Avoid skin contact with sharp edges, heated metal and metallic dusts from these products. Workers should be properly trained in safety procedures for cutting, grinding and other machining operations where these products are used. Wear appropriate personal protective equipment suitable for the type of operation and conforming to workplace requirements. |

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines

Consult local authorities for acceptable exposure limits.

| Ingredient | ACGIH TLV (8-hr. TWA) (mg/m³) | U.S. OSHA PEL (8-hr. TWA) (mg/m³) |
|--|---|---|
| Copper (Cu) | 0.2 (fume) 1 (dust and mist, as Cu) | 0.1 (fume as Cu) 1 (dust and mist, as Cu) |
| Nickel (Ni) | 1.5 (Inhalable) | 1 |
| Manganese (Mn) | 0.2 (Inhalable) | 5 (fume as Mn); Ceiling limit |
| Lead (Pb) | 0.05; BEI | 0.05 (29 CFR 1910.1025); OSHA Carcinogen |
| Other Exposure controls: NIOSH IDLH (Immediately Dangeorous to Life or Health) = 10 (as Ni dust and fume); IDLH = 100 mg/m ³ (as Cu or Pb) NIOSH REL Nickel dust and fume = 0.015 mg/m ³ . NIOSH REL Copper dust = 1 mg/m ³ . | | |



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Section 8: Exposure Controls/Personal Protection, continued

Exposure Controls

Engineering Controls: Provide local exhaust ventilation or general dilution to maintain exposure levels below the exposure limits. Monitor noise levels to determine the hearing protection requirements.

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Personal Protection

Eye/Face Protection: Wear safety glasses with side shields or goggles. Wear equipment appropriate for the type of operation being performed.

Skin Protection: Wear protective gloves and clean body-covering clothing when necessary to prevent exposure to this product. Wear protective equipment appropriate for the type of operation being performed.

Respiratory Protection: When metal dust concentrations in air exceed the occupational exposure guidelines, always wear respiratory protection. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or Canadian Standards Association (CSA) Standard Z94.4-2002 must be followed whenever workplace conditions warrant a respirator's use.

NIOSH recommendations for Nickel metal dust and fume (as Ni), at concentrations above the REL:
Wear an approved positive pressure, full-facepiece self-contained breathing apparatus (SCBA); or positive pressure, full-facepiece supplied-air respirator (SAR) with an auxiliary positive pressure SCBA.

Other Protective Equipment: Wear hearing protection appropriate to the noise levels generated during all machine operations.

General Hygiene Measures: Launder contaminated clothing before re-wearing, or discard. Do not eat, drink or smoke in work areas. Wash hands thoroughly after working with this material and before eating, drinking, smoking or using the toilet. Maintain good housekeeping, keep the workplace clean and minimize the generation of airborne dust.

Section 9: Physical and Chemical Properties

| | | | |
|------------------------------------|--|------------------------------------|----------------------------------|
| Physical State: | Solid | Flash Point & method: | Not applicable |
| Appearance, Color and Odor: | Metal tube or shaped piece, lustrous silver-red color, odorless. | Autoignition Temperature: | Not applicable |
| Odor Threshold: | Not applicable | Flammability Limits in Air: | Not applicable |
| pH: | Not applicable | Vapour Pressure: | Not applicable |
| Density: | 8.69 - 8.94 g/cm ³ at 20°C (68°F) | Vapour Density: | Not applicable |
| Partition coefficient: | Not applicable | Evaporation Rate: | Not applicable |
| Solubility: | Insoluble | Boiling Point/Range: | Not available |
| Viscosity: | Not applicable | Melting Point: | 1149 - 1248°C (2100 - 2260°F) |
| Decomposition Temperature: | Not available | | |



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Section 10: Stability and Reactivity

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| Chemical Stability: | Stable material. May turn green on prolonged contact with air due to formation of cupric carbonate. |
| Conditions to Avoid: | Extreme heat. Avoid heating in the presence of Carbon monoxide; these conditions may generate the toxic and carcinogenic substance Nickel carbonyl. |
| Incompatible Materials: | Chlorine, fluorine, strong oxidising agents, strong acids, strong bases, sodium azide, acetylene, sulphur, selenium and nickel nitrate. |
| Hazardous Decomposition Products: | Thermal decomposition may release metal oxide fumes when product is heated above its melting point. |
| Hazardous Reactions: | Not available |

Section 11: Toxicological Information

Acute Toxicity Data

Acute Toxicity Data is not available for this article.

Other Toxicity Data

| | |
|-------------------------------|--|
| Carcinogenicity: | Nickel metal is suspected of causing cancer by inhalation (Inhalable size particles only). Nickel is an IARC Group 2B carcinogen (possible human carcinogen). Long-term occupational exposures to high concentrations of airborne nickel have been associated with lung and nasal cancers in epidemiological studies. ACGIH has designated metallic Copper as A4 – Not Classifiable as a Human Carcinogen. Lead carcinogenicity: IARC group 2B; ACGIH A3. [Lead is present at less than 0.1%, by weight]. |
| Irritation: | Exposure to fine particulate may cause eye, skin and lung irritation and discomfort. |
| Corrosivity: | Not applicable |
| Sensitization: | Exposures to dusts of metallic nickel are known to cause allergic skin reactions in sensitized individuals. |
| Neurological Effects: | Long-term exposures, by inhalation or ingestion, to high concentrations of dusts containing lead and or manganese may cause nervous system effects including muscle weakness, tremors, and behavioral changes. |
| Genetic Effects: | Not available |
| Reproductive Effects: | Lead: embryotoxicity in animals; reproductive toxicity in humans. [Lead is present at less than 0.1%, by weight]. |
| Developmental Effects: | Lead: saturnism; injury during the postnatal period in humans. [Lead is present at less than 0.1%, by weight]. |
| Target Organ Effects: | Exposures to Copper dust and fume: Upper respiratory system, Eyes, Skin, Liver and Kidney (increased risk to persons with Wilson's Disease). Exposures to Nickel; Causes damage to the respiratory tract through prolonged or repeated exposure by inhalation (particles under 0.1 mm diameter). Inhalation of Nickel containing dusts may cause inflammatory lesions (e.g., chronic inflammation, interstitial infiltrates) in the lungs and damage to the nasal epithelium. Exposures to Lead; GI tract, CNS, kidneys, blood, gingival tissue, eyes. |

Section 12: Ecological Information

| | |
|--------------------------------------|---|
| Ecotoxicity: | Copper metal, Nickel metal and compounds released into the natural environment have long-term adverse effects on the aquatic environment. |
| Persistence/Degradability: | Not applicable |
| Bioaccumulation/Accumulation: | Not available |
| Mobility: | Not available |



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Section 13: Disposal Considerations

Waste Disposal Method: It is the responsibility of the user to dispose of, or send for metal reclamation, any unused material, residues and containers in accordance with local, regional, national and international regulations. Prevent releases of this material into the environment. Do NOT dump into any sewers, on the ground or into any body of water. Store material for disposal or recycling as indicated in Section 7 Handling and Storage.

Section 14: Transport Information

U.S. Hazardous Materials Regulation (DOT 49CFR): As sold, not regulated for transport.

Canadian Transportation of Dangerous Goods (TDG): Not regulated for transport.

ICAO/IATA: Not regulated for transport.

Section 15: Regulatory Information

USA

TSCA Status: All substances are listed in the TSCA inventory.

SARA Title III:

Sec: 311/312: Exposures to dust and fume: Acute; Chronic

Sec. 313: Copper, Nickel, Zinc, Lead, Manganese.

CERCLA RQ: Applicable to Copper, Zinc, Lead. The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm.

Canada

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the SDS contains all the information required by the *Controlled Products Regulations*.

**WHMIS Classification:
(for workplace exposures)** As sold, this product is considered a manufactured article and is not controlled by WHMIS. In some workplaces, operations with this product may lead to generation of metallic dust or fume. Exposure to metallic dusts and fumes may have occupational health hazards and is controlled under WHMIS. Exposures to metallic dust and fumes: D2A – Materials causing other toxic effects. – Inhalation exposures to metallic dust containing Nickel, suspected of causing cancer; respiratory tract chronic health effects. Skin sensitization.

**New Substance Notification
Regulations:** All substances in this product are listed on Canada's Domestic Substances List (DSL).

**National Pollutant
Release Inventory:** Copper, Nickel, Zinc, Lead, Manganese are NPRI reportable substances.

Section 16: Other Information

Preparation Information:

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