



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** Leaded Tin Bronze Alloys  
**Version #** 01  
**Revision date** 01-12-2010  
**CAS #** Mixture  
**Product Code** C92200, C92700, C92900, C93200, C93400, C93700, C93800  
**MSDS Number** 5  
**Product use** Manufacturing  
**Manufacturer/Supplier** Concast Metal Products Company  
131 Myoma Road (PO Box 816) Mars, PA 16046  
dpl@concast.com or adk@concast.com  
Telephone 1-800-626-7071  
Contact Person: Dominic LeMaire or Andy Krowsoski  
**Emergency** 1-800-424-9300  
Chemtrec (24-hrs)

## 2. Hazards Identification

**Physical state** Solid.  
**Appearance** Tubes.  
**Emergency overview** WARNING

Harmful if inhaled or swallowed. Possible cancer hazard - may cause cancer based on animal data. Possible reproductive hazard that may cause adverse reproductive effects based on animal data. May cause allergic skin reaction. Dusts may irritate the respiratory tract, skin and eyes.

Warning: May Form Combustible (Explosive) Dust - Air Mixtures

**OSHA regulatory status** This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

### Potential health effects

**Routes of exposure** Inhalation. Skin contact. Eye contact. Ingestion.

**Eyes** Molten material will produce thermal burns. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eyes.

**Skin** Dust may irritate skin. May cause allergic skin reaction. Hot or molten material may produce thermal burns. Workers allergic to nickel may develop eczema or rashes.

**Inhalation** Harmful if inhaled. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to mucous membranes and respiratory tract.

**Ingestion** Not relevant, due to the form of the product in its manufactured and shipped state. However: Harmful if swallowed.

**Target organs** Lungs.

**Chronic effects** Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.  
Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure.  
May adversely affect the developing fetus based on animal data. Contains nickel, which can cause lung or nasal cancer. Long-term breathing of this material may cause chronic lung disease. Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). The effects might be delayed.

**Signs and symptoms** Irritation of nose and throat. Irritation of eyes and mucous membranes. Coughing. Shortness of breath. Wheezing. Sensitization. The principal symptoms of lead poisoning are gastro-intestinal or central nervous system disturbances and anemia.

**Potential environmental effects** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Copper	7440-50-8	75-90

Lead	7439-92-1	1-16
Tin	7440-31-5	5.5-11
Nickel	7440-02-0	0-4

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The alloy contains additional alloying elements at concentrations below disclosure requirements. At temperatures above the melting point the alloys may liberate fumes containing oxides of alloying elements.

#### 4. First Aid Measures

##### First aid procedures

**Eye contact** Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

**Skin contact** Contact with dust: Wash skin with soap and water. In case of allergic reaction or other skin disorders: Seek medical attention and bring along these instructions. In case of contact with hot or molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

**Inhalation** In case of exposure to fumes or particulates: Get medical attention if discomfort persists.

**Ingestion** Rinse mouth thoroughly if dust is ingested. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.

**Notes to physician** Treat symptomatically. Symptoms may be delayed.

**General advice** Get medical attention if any discomfort develops. Seek medical attention for all burns, regardless how minor they may seem. Show this safety data sheet to the doctor in attendance.

#### 5. Fire Fighting Measures

**Flammable properties** Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air. In a fire, nickel may form nickel carbonyl, a highly toxic substance and known carcinogen.

##### Extinguishing media

**Suitable extinguishing media** Special powder against metal fires. Dry sand.

**Unsuitable extinguishing media** Do not use water or halogenated extinguishing media. Do not use water on molten metal: Explosion hazard could result.

##### Protection of firefighters

**Specific hazards arising from the chemical** During fire, gases hazardous to health may be formed.

**Protective equipment and precautions for firefighters** Move containers from fire area if you can do it without risk.

**Special protective equipment for fire-fighters** Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

**Hazardous combustion products** Metal oxides. Phosphorus oxides.

#### 6. Accidental Release Measures

**Personal precautions** Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.

**Environmental precautions** Avoid release to the environment. Do not contaminate water.

**Methods for containment** Not applicable.

**Methods for cleaning up** Avoid dust formation. Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. If not possible, gently moisten dust before it is collected with shovel, broom or the like. The vacuum cleaner should be explosion-proofed. This material and its container must be disposed of as hazardous waste.

**Other information**

Clean up in accordance with all applicable regulations.

**7. Handling and Storage****Handling**

Follow special national provisions related to work with lead and its compounds. Pregnant women should not work with the product, if there is the least risk of lead exposure. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Provide adequate ventilation. Avoid contact with sharp edges and hot surfaces. Avoid inhalation of dust and contact with skin and eyes. Avoid generation and spreading of dust and fumes. Avoid contact with hot or molten material. Dust clouds may be explosive under certain conditions. Take precautionary measures against static discharges when there is a risk of dust explosion. Use explosion-proof electrical equipment if airborne dust levels are high. To prevent and minimize fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system. Wear appropriate personal protective equipment. Do not use water on molten metal. Do not eat, drink or smoke when using the product. Keep the workplace clean. Observe good industrial hygiene practices.

**Storage**

Keep dry. Store away from incompatible materials.

**8. Exposure Controls / Personal Protection****Occupational exposure limits****ACGIH**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup> 0,2 mg/m <sup>3</sup>	Dust and mist. Fume.
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	Inhalable fraction.
Nickel (7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**U.S. - OSHA**

Components	Type	Value	Form
Copper (7440-50-8)	PEL	1 mg/m <sup>3</sup>	Dust and mist. Fume.
	TWA	0,1 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,1 mg/m <sup>3</sup>	Dust and mist.
	TWA	1 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	
	PEL	1 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	1 mg/m <sup>3</sup>	
	PEL	2 mg/m <sup>3</sup>	
	TWA	2 mg/m <sup>3</sup>	

**Canada - Alberta**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Canada - British Columbia**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Canada - Ontario**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	

Components	Type	Value	Form
Nickel (7440-02-0)	TWA	1 mg/m3	Inhalable
Tin (7440-31-5)	TWA	2 mg/m3	

  

Canada - Quebec			
Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m3 0,2 mg/m3	Dust and mist. Fume.
Lead (7439-92-1)	TWA	0,05 mg/m3	
Nickel (7440-02-0)	TWA	1 mg/m3	
Tin (7440-31-5)	TWA	2 mg/m3	

  

Mexico			
Components	Type	Value	Form
Copper (7440-50-8)	STEL	2 mg/m3	Fume.
	TWA	2 mg/m3	Dust and mist.
	TWA	1 mg/m3	Dust and mist.
	TWA	0,2 mg/m3	Fume.
Lead (7439-92-1)	TWA	0,15 mg/m3	Dust and fume.
Nickel (7440-02-0)	TWA	1 mg/m3	
Tin (7440-31-5)	STEL	4 mg/m3	
	TWA	2 mg/m3	

**Engineering controls** Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing etc., in order to eliminate explosion hazards. Follow the schedule for work place measurements when working with lead and its compounds.

**Personal protective equipment**

**Eye / face protection** Wear dust-resistant safety goggles where there is danger of eye contact. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.

**Skin protection** Wear suitable protective gloves to prevent cuts and abrasions. When material is heated, wear gloves to protect against thermal burns. Suitable gloves can be recommended by the glove supplier. Wear suitable protective clothing.

**Respiratory protection** When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator for dusts. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use. Seek advice from local supervisor.

**General hygiene considerations** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Private clothes and working clothes should be kept separately. Contaminated uniforms should be laundered separately from other clothing to prevent potential cross-contamination. If possible, an industrial laundry service should be used to eliminate the possibility of contaminating the home environment. Handle in accordance with good industrial hygiene and safety practices. Observe any medical surveillance requirements.

**9. Physical & Chemical Properties**

**Appearance** Tubes.

**Color** Yellow to red.

**Odor** None.

**Odor threshold** Not available.

**Physical state** Solid.

**Form** Solid.

**pH** Not available.

**Melting point** 1790.6 °F (977 °C)

**Freezing point** Not available.

<b>Boiling point</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Specific gravity</b>	7.5 - 9
<b>Solubility (water)</b>	Insoluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Bulk density</b>	0.27 - 0.323 lb/in <sup>3</sup>

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Massive metal is stable and non reactive under normal conditions of use, storage and transport.
<b>Conditions to avoid</b>	Contact with incompatible materials. Contact with acids will release flammable hydrogen gas. Avoid dust formation. Dust clouds may be explosive under certain conditions.
<b>Incompatible materials</b>	Acids. Ammonium nitrate. Fluoride. Halogens. Nitrates. Phosphorus. Strong oxidizing agents. Sulphur.
<b>Hazardous decomposition products</b>	Welding, burning, sawing, brazing, grinding or machining operations may generate dusts and fumes of metal oxides. Lead oxide fumes may be formed at elevated temperatures. Phosphorus oxides.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur. Hot molten material will react violently with water resulting in spattering and fuming.

## 11. Toxicological Information

<b>Acute effects</b>	Harmful if inhaled or swallowed. Dusts may irritate the respiratory tract, skin and eyes. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever.
<b>Local effects</b>	May cause irritation through mechanical abrasion.
<b>Sensitization</b>	May cause allergic skin reaction.
<b>Chronic effects</b>	Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). Chronic inhalation of metallic oxide dust/fume may cause metal fume fever. Lead may produce maternal toxicity, toxicity to the fetus, and adverse effects to blood, bone marrow, central/peripheral nervous systems, kidney, liver, and reproductive system. May adversely affect the developing fetus based on animal data.
<b>Carcinogenicity</b>	Possible cancer hazard - may cause cancer based on animal data.
<b>ACGIH Carcinogens</b>	
Lead (CAS 7439-92-1)	A3 Confirmed animal carcinogen with unknown relevance to humans.
Nickel (CAS 7440-02-0)	A5 Not suspected as a human carcinogen.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	
Lead (CAS 7439-92-1)	2B Possibly carcinogenic to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
<b>US NTP Report on Carcinogens: Anticipated carcinogen</b>	
Lead (CAS 7439-92-1)	Anticipated carcinogen.
Nickel (CAS 7440-02-0)	Anticipated carcinogen.
<b>US NTP Report on Carcinogens: Known carcinogen</b>	
Nickel (CAS 7440-02-0)	Known carcinogen.
<b>Epidemiology</b>	Based on epidemiological studies, pre-existing pulmonary disorders may be aggravated by prolonged exposure to high concentrations of metal dust or fumes. Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.

<b>Mutagenicity</b>	No data available.
<b>Neurological effects</b>	No data available.
<b>Reproductive effects</b>	Possible reproductive hazard that may cause adverse reproductive effects based on animal data.
<b>Teratogenicity</b>	Nickel: Has shown teratogenic effects in laboratory animals.
<b>Further information</b>	Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure. Welding or plasma arc cutting of metal and alloys can generate ozone, nitric oxides and ultraviolet radiation. Ozone overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and welders flash.

## 12. Ecological Information

### Ecotoxicological data

Components	Test Results
Lead (7439-92-1)	LC50 Rainbow trout, donaldson trout ( <i>Oncorhynchus mykiss</i> ): 1.17 mg/l 96 Hours
<b>Ecotoxicity</b>	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<b>Persistence and degradability</b>	The product is not biodegradable.
<b>Bioaccumulation / Accumulation</b>	The product contains potentially bioaccumulating substances.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Mobility in environmental media</b>	Alloys in massive forms are not mobile in the environment.

## 13. Disposal Considerations

<b>Waste codes</b>	Not regulated.
<b>Disposal instructions</b>	This material and its container must be disposed of as hazardous waste. Dispose in accordance with all applicable regulations.
<b>Waste from residues / unused products</b>	Recover and recycle, if practical. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.
<b>Contaminated packaging</b>	Not applicable.

## 14. Transport Information

### DOT

#### Basic shipping requirements:

<b>UN number</b>	UN3077
<b>Proper shipping name</b>	Environmentally hazardous substances, solid, n.o.s. (Lead RQ = 80 LBS)
<b>Hazard class</b>	9
<b>Packing group</b>	III

#### Additional information:

<b>Special provisions</b>	8, 146, B54, IB8, IP3, N20, T1, TP33
<b>Packaging exceptions</b>	155
<b>Packaging non bulk</b>	213
<b>Packaging bulk</b>	240
<b>ERG number</b>	171

### IATA

#### Basic shipping requirements:

<b>UN number</b>	3077
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Lead)
<b>Hazard class</b>	9
<b>Packing group</b>	III

### IMDG

#### Basic shipping requirements:

<b>UN number</b>	3077
<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)
<b>Hazard class</b>	9
<b>Packing group</b>	III

**Environmental hazards**

**Marine pollutant** Yes  
**Labels required** 9

**TDG**

**Basic shipping requirements:**

**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)  
**Hazard class** 9  
**UN number** UN3077  
**Packing group** III  
**Marine pollutant** Yes

**Additional information:**

**Special provisions** 16



DOT



IATA



IMDG



TDG

**15. Regulatory Information**

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration**

Copper (CAS 7440-50-8) 1.0 %  
Lead (CAS 7439-92-1) 0.1 % Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.  
Nickel (CAS 7440-02-0) 0.1 %

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

Copper (CAS 7440-50-8) Listed.  
Lead (CAS 7439-92-1) Listed.  
Nickel (CAS 7440-02-0) Listed.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold**

Lead (CAS 7439-92-1) 100 LBS

**CERCLA (Superfund) reportable quantity (lbs)**

Copper: 5000  
Lead: 10  
Nickel: 100

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

<b>Section 302 extremely hazardous substance</b>	No
<b>Section 311 hazardous chemical</b>	Yes
<b>Drug Enforcement Agency (DEA)</b>	Not controlled
<b>WHMIS status</b>	Controlled
<b>WHMIS classification</b>	D2A - Other Toxic Effects-VERY TOXIC D2B - Other Toxic Effects-TOXIC

**WHMIS labeling**



**Inventory status**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**State regulations**

WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Hazardous Substances (Director's): Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Lead (CAS 7439-92-1)	Listed: October 1, 1992 Carcinogenic.
Nickel (CAS 7440-02-0)	Listed: October 1, 1989 Carcinogenic.

**US - California Proposition 65 - CRT: Listed date/Developmental toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Developmental toxin.
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**US - California Proposition 65 - CRT: Listed date/Female reproductive toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Female reproductive toxin.
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**US - California Proposition 65 - CRT: Listed date/Male reproductive toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Male reproductive toxin.
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**US - Massachusetts RTK - Substance: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

Copper (CAS 7440-50-8)	500 LBS
Lead (CAS 7439-92-1)	500 LBS
Nickel (CAS 7440-02-0)	500 LBS



**US - New Jersey RTK - Substances: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - Pennsylvania RTK - Hazardous Substances: All compounds of this substance are considered environmental hazards**

Copper (CAS 7440-50-8)	LISTED
Lead (CAS 7439-92-1)	LISTED
Nickel (CAS 7440-02-0)	LISTED

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - Pennsylvania RTK - Hazardous Substances: Special hazard**

Nickel (CAS 7440-02-0)	Special hazard.
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**16. Other Information**

<b>Recommended use</b>	Manufacturing
<b>Recommended restrictions</b>	Not assigned.
<b>Further information</b>	HMIS® is a registered trade and service mark of the NPCA. X - Specialized Handling
<b>HMIS® ratings</b>	Health: 2* Flammability: 0 Physical hazard: 0 Personal protection: X
<b>NFPA ratings</b>	Health: 2 Flammability: 0 Instability: 0
<b>Disclaimer</b>	The information in this MSDS was obtained from industry sources that we believe to be reliable. However, the information is provided without any representation or warranty, expressed or implied regarding the accuracy or correctness. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.
<b>Issue date</b>	01-12-2010



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** High Lead Tin Bronze Alloys  
**Version #** 01  
**Revision date** 01-12-2010  
**CAS #** Mixture  
**Product Code** C94000, C94100, C94300, C94500, C94800, T125, T230, T520  
**MSDS Number** 5  
**Product use** Manufacturing  
**Manufacturer/Supplier** Concast Metal Products Company  
131 Myoma Road (PO Box 816) Mars, PA 16046  
dpl@concast.com or adk@concast.com  
Telephone 1-800-626-7071  
Contact Person: Dominic LeMaire or Andy Krowsoski  
**Emergency** 1-800-424-9300  
Chemtrec (24-hrs)

## 2. Hazards Identification

**Physical state** Solid.  
**Appearance** Tubes.  
**Emergency overview** WARNING

Harmful if inhaled or swallowed. Possible cancer hazard - may cause cancer based on animal data. Possible reproductive hazard that may cause adverse reproductive effects based on animal data. May cause allergic skin reaction. Dusts may irritate the respiratory tract, skin and eyes.

Warning: May Form Combustible (Explosive) Dust - Air Mixtures

### OSHA regulatory status

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

### Potential health effects

#### Routes of exposure

Inhalation. Skin contact. Eye contact. Ingestion.

#### Eyes

Molten material will produce thermal burns. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eyes.

#### Skin

Dust may irritate skin. May cause allergic skin reaction. Hot or molten material may produce thermal burns. Workers allergic to nickel may develop eczema or rashes.

#### Inhalation

Harmful if inhaled. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to mucous membranes and respiratory tract.

#### Ingestion

Not relevant, due to the form of the product in its manufactured and shipped state. However: Harmful if swallowed.

### Target organs

Lungs.

### Chronic effects

Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure.

May adversely affect the developing fetus based on animal data. Contains nickel, which can cause lung or nasal cancer. Long-term breathing of this material may cause chronic lung disease. Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). The effects might be delayed.

### Signs and symptoms

Irritation of nose and throat. Irritation of eyes and mucous membranes. Coughing. Shortness of breath. Wheezing. Sensitization. The principal symptoms of lead poisoning are gastro-intestinal or central nervous system disturbances and anemia.

### Potential environmental effects

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Copper	7440-50-8	68.5-89

Lead	7439-92-1	22-32
Tin	7440-31-5	4.5-6
Nickel	7440-02-0	0-6

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The alloy contains additional alloying elements at concentrations below disclosure requirements. At temperatures above the melting point the alloys may liberate fumes containing oxides of alloying elements.

#### 4. First Aid Measures

##### First aid procedures

###### Eye contact

Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

###### Skin contact

Contact with dust: Wash skin with soap and water. In case of allergic reaction or other skin disorders: Seek medical attention and bring along these instructions. In case of contact with hot or molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

###### Inhalation

In case of exposure to fumes or particulates: Get medical attention if discomfort persists.

###### Ingestion

Rinse mouth thoroughly if dust is ingested. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.

##### Notes to physician

Treat symptomatically. Symptoms may be delayed.

##### General advice

Get medical attention if any discomfort develops. Seek medical attention for all burns, regardless how minor they may seem. Show this safety data sheet to the doctor in attendance.

#### 5. Fire Fighting Measures

##### Flammable properties

Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air. In a fire, nickel may form nickel carbonyl, a highly toxic substance and known carcinogen.

##### Extinguishing media

###### Suitable extinguishing media

Special powder against metal fires. Dry sand.

###### Unsuitable extinguishing media

Do not use water or halogenated extinguishing media. Do not use water on molten metal: Explosion hazard could result.

##### Protection of firefighters

###### Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

###### Protective equipment and precautions for firefighters

Move containers from fire area if you can do it without risk.

##### Special protective equipment for fire-fighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

##### Hazardous combustion products

Metal oxides.

#### 6. Accidental Release Measures

##### Personal precautions

Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.

##### Environmental precautions

Avoid release to the environment. Do not contaminate water.

##### Methods for containment

Not applicable.

##### Methods for cleaning up

Avoid dust formation. Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. If not possible, gently moisten dust before it is collected with shovel, broom or the like. The vacuum cleaner should be explosion-proofed. This material and its container must be disposed of as hazardous waste.

**Other information**

Clean up in accordance with all applicable regulations.

**7. Handling and Storage****Handling**

Follow special national provisions related to work with lead and its compounds. Pregnant women should not work with the product, if there is the least risk of lead exposure. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Provide adequate ventilation. Avoid contact with sharp edges and hot surfaces. Avoid inhalation of dust and contact with skin and eyes. Avoid generation and spreading of dust and fumes. Avoid contact with hot or molten material. Dust clouds may be explosive under certain conditions. Take precautionary measures against static discharges when there is a risk of dust explosion. Use explosion-proof electrical equipment if airborne dust levels are high. To prevent and minimize fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system. Wear appropriate personal protective equipment. Do not use water on molten metal. Do not eat, drink or smoke when using the product. Keep the workplace clean. Observe good industrial hygiene practices.

**Storage**

Keep dry. Store away from incompatible materials.

**8. Exposure Controls / Personal Protection****Occupational exposure limits****ACGIH**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup> 0,2 mg/m <sup>3</sup>	Dust and mist. Fume.
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	Inhalable fraction.
Nickel (7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**U.S. - OSHA**

Components	Type	Value	Form
Copper (7440-50-8)	PEL	1 mg/m <sup>3</sup>	Dust and mist. Fume.
	TWA	0,1 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,1 mg/m <sup>3</sup>	Dust and mist.
	TWA	1 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	
	PEL	1 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	1 mg/m <sup>3</sup>	
	PEL	2 mg/m <sup>3</sup>	
	TWA	2 mg/m <sup>3</sup>	

**Canada - Alberta**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Canada - British Columbia**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Canada - Ontario**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	

Components	Type	Value	Form
Nickel (7440-02-0)	TWA	1 mg/m3	Inhalable
Tin (7440-31-5)	TWA	2 mg/m3	

  

Canada - Quebec			
Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m3 0,2 mg/m3	Dust and mist. Fume.
Lead (7439-92-1)	TWA	0,05 mg/m3	
Nickel (7440-02-0)	TWA	1 mg/m3	
Tin (7440-31-5)	TWA	2 mg/m3	

  

Mexico			
Components	Type	Value	Form
Copper (7440-50-8)	STEL	2 mg/m3	Fume.
		2 mg/m3	Dust and mist.
	TWA	1 mg/m3	Dust and mist.
		0,2 mg/m3	Fume.
Lead (7439-92-1)	TWA	0,15 mg/m3	Dust and fume.
Nickel (7440-02-0)	TWA	1 mg/m3	
Tin (7440-31-5)	STEL	4 mg/m3	
	TWA	2 mg/m3	

**Engineering controls** Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing etc., in order to eliminate explosion hazards. Follow the schedule for work place measurements when working with lead and its compounds.

**Personal protective equipment**

**Eye / face protection** Wear dust-resistant safety goggles where there is danger of eye contact. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.

**Skin protection** Wear suitable protective gloves to prevent cuts and abrasions. When material is heated, wear gloves to protect against thermal burns. Suitable gloves can be recommended by the glove supplier. Wear suitable protective clothing.

**Respiratory protection** When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator for dusts. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use. Seek advice from local supervisor.

**General hygiene considerations** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Private clothes and working clothes should be kept separately. Contaminated uniforms should be laundered separately from other clothing to prevent potential cross-contamination. If possible, an industrial laundry service should be used to eliminate the possibility of contaminating the home environment. Handle in accordance with good industrial hygiene and safety practices. Observe any medical surveillance requirements.

**9. Physical & Chemical Properties**

**Appearance** Tubes.

**Color** Yellow to red.

**Odor** None.

**Odor threshold** Not available.

**Physical state** Solid.

**Form** Solid.

**pH** Not available.

**Melting point** 1724 °F (940 °C)

**Freezing point** Not available.

<b>Boiling point</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Specific gravity</b>	7.5 - 9
<b>Solubility (water)</b>	Insoluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Bulk density</b>	0.27 - 0.323 lb/in <sup>3</sup>

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Massive metal is stable and non reactive under normal conditions of use, storage and transport.
<b>Conditions to avoid</b>	Contact with incompatible materials. Contact with acids will release flammable hydrogen gas. Avoid dust formation. Dust clouds may be explosive under certain conditions.
<b>Incompatible materials</b>	Acids. Ammonium nitrate. Fluoride. Halogens. Nitrates. Phosphorus. Strong oxidizing agents. Sulphur.
<b>Hazardous decomposition products</b>	Welding, burning, sawing, brazing, grinding or machining operations may generate dusts and fumes of metal oxides. Lead oxide fumes may be formed at elevated temperatures.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur. Hot molten material will react violently with water resulting in spattering and fuming.

## 11. Toxicological Information

<b>Acute effects</b>	Harmful if inhaled or swallowed. Dusts may irritate the respiratory tract, skin and eyes. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever.
<b>Local effects</b>	May cause irritation through mechanical abrasion.
<b>Sensitization</b>	May cause allergic skin reaction.
<b>Chronic effects</b>	Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). Chronic inhalation of metallic oxide dust/fume may cause metal fume fever. Lead may produce maternal toxicity, toxicity to the fetus, and adverse effects to blood, bone marrow, central/peripheral nervous systems, kidney, liver, and reproductive system. May adversely affect the developing fetus based on animal data.
<b>Carcinogenicity</b>	Possible cancer hazard - may cause cancer based on animal data.
<b>ACGIH Carcinogens</b>	
Lead (CAS 7439-92-1)	A3 Confirmed animal carcinogen with unknown relevance to humans.
Nickel (CAS 7440-02-0)	A5 Not suspected as a human carcinogen.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	
Lead (CAS 7439-92-1)	2B Possibly carcinogenic to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
<b>US NTP Report on Carcinogens: Anticipated carcinogen</b>	
Lead (CAS 7439-92-1)	Anticipated carcinogen.
Nickel (CAS 7440-02-0)	Anticipated carcinogen.
<b>US NTP Report on Carcinogens: Known carcinogen</b>	
Nickel (CAS 7440-02-0)	Known carcinogen.
<b>Epidemiology</b>	Based on epidemiological studies, pre-existing pulmonary disorders may be aggravated by prolonged exposure to high concentrations of metal dust or fumes. Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.
<b>Mutagenicity</b>	No data available.

<b>Neurological effects</b>	No data available.
<b>Reproductive effects</b>	Possible reproductive hazard that may cause adverse reproductive effects based on animal data.
<b>Teratogenicity</b>	Nickel: Has shown teratogenic effects in laboratory animals.
<b>Further information</b>	Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure. Welding or plasma arc cutting of metal and alloys can generate ozone, nitric oxides and ultraviolet radiation. Ozone overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and welders flash.

## 12. Ecological Information

### Ecotoxicological data

Components	Test Results
Lead (7439-92-1)	LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss): 1.17 mg/l 96 Hours
<b>Ecotoxicity</b>	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<b>Persistence and degradability</b>	The product is not biodegradable.
<b>Bioaccumulation / Accumulation</b>	The product contains potentially bioaccumulating substances.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Mobility in environmental media</b>	Alloys in massive forms are not mobile in the environment.

## 13. Disposal Considerations

<b>Waste codes</b>	Not regulated.
<b>Disposal instructions</b>	This material and its container must be disposed of as hazardous waste. Dispose in accordance with all applicable regulations.
<b>Waste from residues / unused products</b>	Recover and recycle, if practical. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.
<b>Contaminated packaging</b>	Not applicable.

## 14. Transport Information

### DOT

#### Basic shipping requirements:

<b>UN number</b>	UN3077
<b>Proper shipping name</b>	Environmentally hazardous substances, solid, n.o.s. (Lead RQ = 42 LBS)
<b>Hazard class</b>	9
<b>Packing group</b>	III

#### Additional information:

<b>Special provisions</b>	8, 146, B54, IB8, IP3, N20, T1, TP33
<b>Packaging exceptions</b>	155
<b>Packaging non bulk</b>	213
<b>Packaging bulk</b>	240
<b>ERG number</b>	171

### IATA

#### Basic shipping requirements:

<b>UN number</b>	3077
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Lead)
<b>Hazard class</b>	9
<b>Packing group</b>	III
<b>Labels required</b>	9

### IMDG

#### Basic shipping requirements:

<b>UN number</b>	3077
<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)
<b>Hazard class</b>	9
<b>Packing group</b>	III

**Environmental hazards**

**Marine pollutant** Yes  
**Labels required** 9

**TDG****Basic shipping requirements:**

**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)  
**Hazard class** 9  
**UN number** UN3077  
**Packing group** III  
**Marine pollutant** Yes

**Additional information:**

**Special provisions** 16



DOT



IATA



IMDG



TDG

**15. Regulatory Information****US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
 All components are on the U.S. EPA TSCA Inventory List.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration**

Copper (CAS 7440-50-8)	1.0 %
Lead (CAS 7439-92-1)	0.1 % Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.
Nickel (CAS 7440-02-0)	0.1 %

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold**

Lead (CAS 7439-92-1)	100 LBS
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**CERCLA (Superfund) reportable quantity (lbs)**

Copper: 5000  
 Lead: 10  
 Nickel: 100

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

- Immediate Hazard - Yes
- Delayed Hazard - Yes
- Fire Hazard - No
- Pressure Hazard - No
- Reactivity Hazard - No



<b>Section 302 extremely hazardous substance</b>	No
<b>Section 311 hazardous chemical</b>	Yes
<b>Drug Enforcement Agency (DEA)</b>	Not controlled
<b>WHMIS status</b>	Controlled
<b>WHMIS classification</b>	D2A - Other Toxic Effects-VERY TOXIC D2B - Other Toxic Effects-TOXIC

**WHMIS labeling**



**Inventory status**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**State regulations**

WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Hazardous Substances (Director's): Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Lead (CAS 7439-92-1)	Listed: October 1, 1992 Carcinogenic.
Nickel (CAS 7440-02-0)	Listed: October 1, 1989 Carcinogenic.

**US - California Proposition 65 - CRT: Listed date/Developmental toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Developmental toxin.
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**US - California Proposition 65 - CRT: Listed date/Female reproductive toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Female reproductive toxin.
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**US - California Proposition 65 - CRT: Listed date/Male reproductive toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Male reproductive toxin.
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**US - Massachusetts RTK - Substance: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

Copper (CAS 7440-50-8)	500 LBS
Lead (CAS 7439-92-1)	500 LBS
Nickel (CAS 7440-02-0)	500 LBS

**US - New Jersey RTK - Substances: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - Pennsylvania RTK - Hazardous Substances: All compounds of this substance are considered environmental hazards**

Copper (CAS 7440-50-8)	LISTED
Lead (CAS 7439-92-1)	LISTED
Nickel (CAS 7440-02-0)	LISTED

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - Pennsylvania RTK - Hazardous Substances: Special hazard**

Nickel (CAS 7440-02-0)	Special hazard.
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**16. Other Information**

<b>Recommended use</b>	Manufacturing
<b>Recommended restrictions</b>	Not assigned.
<b>Further information</b>	HMIS® is a registered trade and service mark of the NPCA. X - Specialized Handling
<b>HMIS® ratings</b>	Health: 2* Flammability: 0 Physical hazard: 0 Personal protection: X
<b>NFPA ratings</b>	Health: 2 Flammability: 0 Instability: 0
<b>Disclaimer</b>	The information in this MSDS was obtained from industry sources that we believe to be reliable. However, the information is provided without any representation or warranty, expressed or implied regarding the accuracy or correctness. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.
<b>Issue date</b>	01-12-2010



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** Red Brass Alloys  
**Version #** 01  
**Revision date** 01-12-2010  
**CAS #** Mixture  
**Product Code** C83600, C84400, C84500, C834800  
**MSDS Number** 9  
**Product use** Manufacturing  
**Manufacturer/Supplier** Concast Metal Products Company  
131 Myoma Road (PO Box 816) Mars, PA 16046  
dpl@concast.com or adk@concast.com  
Telephone 1-800-626-7071  
Contact Person: Dominic LeMaire or Andy Krowsoski  
**Emergency** 1-800-424-9300  
Chemtrec (24-hrs)

## 2. Hazards Identification

**Physical state** Solid.  
**Appearance** Shapes, Solids & Tubes.  
**Emergency overview** WARNING

Harmful if inhaled or swallowed. Possible cancer hazard - may cause cancer based on animal data. Possible reproductive hazard that may cause adverse reproductive effects based on animal data. May cause allergic skin reaction. Dusts may irritate the respiratory tract, skin and eyes.

Warning: May Form Combustible (Explosive) Dust - Air Mixtures

**OSHA regulatory status** This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

### Potential health effects

#### Routes of exposure

Inhalation. Skin contact. Eye contact. Ingestion.

#### Eyes

Molten material will produce thermal burns. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eyes.

#### Skin

Dust may irritate skin. May cause allergic skin reaction. Hot or molten material may produce thermal burns. Workers allergic to nickel may develop eczema or rashes.

#### Inhalation

Harmful if inhaled. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to mucous membranes and respiratory tract.

#### Ingestion

Not relevant, due to the form of the product in its manufactured and shipped state. However: Harmful if swallowed.

### Target organs

Lungs.

### Chronic effects

Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure.

May adversely affect the developing fetus based on animal data. Contains nickel, which can cause lung or nasal cancer. Long-term breathing of this material may cause chronic lung disease. Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). The effects might be delayed.

### Signs and symptoms

Irritation of nose and throat. Irritation of eyes and mucous membranes. Coughing. Shortness of breath. Wheezing. Sensitization. The principal symptoms of lead poisoning are gastro-intestinal or central nervous system disturbances and anemia.

**Potential environmental effects** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Copper	7440-50-8	78-86

Lead	7439-92-1	4-8
Tin	7440-31-5	2.3-6
Nickel	7440-02-0	0-1

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The alloy contains additional alloying elements at concentrations below disclosure requirements. At temperatures above the melting point the alloys may liberate fumes containing oxides of alloying elements.

## 4. First Aid Measures

### First aid procedures

#### Eye contact

Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

#### Skin contact

Contact with dust: Wash skin with soap and water. In case of allergic reaction or other skin disorders: Seek medical attention and bring along these instructions. In case of contact with hot or molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

#### Inhalation

In case of exposure to fumes or particulates: Get medical attention if discomfort persists.

#### Ingestion

Rinse mouth thoroughly if dust is ingested. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.

### Notes to physician

Treat symptomatically. Symptoms may be delayed.

### General advice

Get medical attention if any discomfort develops. Seek medical attention for all burns, regardless how minor they may seem. Show this safety data sheet to the doctor in attendance.

## 5. Fire Fighting Measures

### Flammable properties

Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air. In a fire, nickel may form nickel carbonyl, a highly toxic substance and known carcinogen.

### Extinguishing media

#### Suitable extinguishing media

Special powder against metal fires. Dry sand.

#### Unsuitable extinguishing media

Do not use water or halogenated extinguishing media. Do not use water on molten metal: Explosion hazard could result.

### Protection of firefighters

#### Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

#### Protective equipment and precautions for firefighters

Move containers from fire area if you can do it without risk.

### Special protective equipment for fire-fighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

### Hazardous combustion products

Metal oxides.

## 6. Accidental Release Measures

### Personal precautions

Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.

### Environmental precautions

Avoid release to the environment. Do not contaminate water.

### Methods for containment

Not applicable.

### Methods for cleaning up

Avoid dust formation. Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. If not possible, gently moisten dust before it is collected with shovel, broom or the like. The vacuum cleaner should be explosion-proofed. This material and its container must be disposed of as hazardous waste.

**Other information**

Clean up in accordance with all applicable regulations.

**7. Handling and Storage****Handling**

Follow special national provisions related to work with lead and its compounds. Pregnant women should not work with the product, if there is the least risk of lead exposure. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Provide adequate ventilation. Avoid contact with sharp edges and hot surfaces. Avoid inhalation of dust and contact with skin and eyes. Avoid generation and spreading of dust and fumes. Avoid contact with hot or molten material. Dust clouds may be explosive under certain conditions. Take precautionary measures against static discharges when there is a risk of dust explosion. Use explosion-proof electrical equipment if airborne dust levels are high. To prevent and minimize fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system. Wear appropriate personal protective equipment. Do not use water on molten metal. Do not eat, drink or smoke when using the product. Keep the workplace clean. Observe good industrial hygiene practices.

**Storage**

Keep dry. Store away from incompatible materials.

**8. Exposure Controls / Personal Protection****Occupational exposure limits****ACGIH**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup> 0,2 mg/m <sup>3</sup>	Dust and mist. Fume.
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	Inhalable fraction.
Nickel (7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**U.S. - OSHA**

Components	Type	Value	Form
Copper (7440-50-8)	PEL	1 mg/m <sup>3</sup>	Dust and mist. Fume.
	TWA	0,1 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,1 mg/m <sup>3</sup>	Dust and mist.
	TWA	1 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	
	PEL	1 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	1 mg/m <sup>3</sup>	
	PEL	2 mg/m <sup>3</sup>	
	TWA	2 mg/m <sup>3</sup>	

**Canada - Alberta**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	1,5 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Canada - British Columbia**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	
Nickel (7440-02-0)	TWA	0,05 mg/m <sup>3</sup>	
Tin (7440-31-5)	TWA	2 mg/m <sup>3</sup>	

**Canada - Ontario**

Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist. Fume.
		0,2 mg/m <sup>3</sup>	
Lead (7439-92-1)	TWA	0,05 mg/m <sup>3</sup>	

Components	Type	Value	Form
Nickel (7440-02-0)	TWA	1 mg/m3	Inhalable
Tin (7440-31-5)	TWA	2 mg/m3	

  

Canada - Quebec			
Components	Type	Value	Form
Copper (7440-50-8)	TWA	1 mg/m3 0,2 mg/m3	Dust and mist. Fume.
Lead (7439-92-1)	TWA	0,05 mg/m3	
Nickel (7440-02-0)	TWA	1 mg/m3	
Tin (7440-31-5)	TWA	2 mg/m3	

  

Mexico			
Components	Type	Value	Form
Copper (7440-50-8)	STEL	2 mg/m3	Fume.
	TWA	2 mg/m3	Dust and mist.
	TWA	1 mg/m3	Dust and mist.
	TWA	0,2 mg/m3	Fume.
Lead (7439-92-1)	TWA	0,15 mg/m3	Dust and fume.
Nickel (7440-02-0)	TWA	1 mg/m3	
Tin (7440-31-5)	STEL	4 mg/m3	
	TWA	2 mg/m3	

**Engineering controls** Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing etc., in order to eliminate explosion hazards. Follow the schedule for work place measurements when working with lead and its compounds.

**Personal protective equipment**

**Eye / face protection** Wear dust-resistant safety goggles where there is danger of eye contact. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.

**Skin protection** Wear suitable protective gloves to prevent cuts and abrasions. When material is heated, wear gloves to protect against thermal burns. Suitable gloves can be recommended by the glove supplier. Wear suitable protective clothing.

**Respiratory protection** When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator for dusts. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use. Seek advice from local supervisor.

**General hygiene considerations** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Private clothes and working clothes should be kept separately. Contaminated uniforms should be laundered separately from other clothing to prevent potential cross-contamination. If possible, an industrial laundry service should be used to eliminate the possibility of contaminating the home environment. Handle in accordance with good industrial hygiene and safety practices. Observe any medical surveillance requirements.

**9. Physical & Chemical Properties**

**Appearance** Shapes, Solids & Tubes.

**Color** Yellow to red.

**Odor** None.

**Odor threshold** Not available.

**Physical state** Solid.

**Form** Solid.

**pH** Not available.

**Melting point** 1841 °F (1005 °C)

**Freezing point** Not available.

<b>Boiling point</b>	Not available.
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Specific gravity</b>	8.7
<b>Solubility (water)</b>	Insoluble.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Bulk density</b>	314 lb/in <sup>3</sup> (20°C/ 68°F)

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Massive metal is stable and non reactive under normal conditions of use, storage and transport.
<b>Conditions to avoid</b>	Contact with incompatible materials. Contact with acids will release flammable hydrogen gas. Avoid dust formation. Dust clouds may be explosive under certain conditions.
<b>Incompatible materials</b>	Acids. Ammonium nitrate. Fluoride. Halogens. Nitrates. Phosphorus. Strong oxidizing agents. Sulphur.
<b>Hazardous decomposition products</b>	Welding, burning, sawing, brazing, grinding or machining operations may generate dusts and fumes of metal oxides. Lead oxide fumes may be formed at elevated temperatures.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur. Hot molten material will react violently with water resulting in spattering and fuming.

## 11. Toxicological Information

<b>Acute effects</b>	Harmful if inhaled or swallowed. Dusts may irritate the respiratory tract, skin and eyes. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever.
<b>Local effects</b>	May cause irritation through mechanical abrasion.
<b>Sensitization</b>	May cause allergic skin reaction.
<b>Chronic effects</b>	May adversely affect the developing fetus based on animal data. Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). Chronic inhalation of metallic oxide dust/fume may cause metal fume fever. Lead may produce maternal toxicity, toxicity to the fetus, and adverse effects to blood, bone marrow, central/peripheral nervous systems, kidney, liver, and reproductive system.
<b>Carcinogenicity</b>	Possible cancer hazard - may cause cancer based on animal data.
<b>ACGIH Carcinogens</b>	
Lead (CAS 7439-92-1)	A3 Confirmed animal carcinogen with unknown relevance to humans.
Nickel (CAS 7440-02-0)	A5 Not suspected as a human carcinogen.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	
Lead (CAS 7439-92-1)	2B Possibly carcinogenic to humans.
Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
<b>US NTP Report on Carcinogens: Anticipated carcinogen</b>	
Lead (CAS 7439-92-1)	Anticipated carcinogen.
Nickel (CAS 7440-02-0)	Anticipated carcinogen.
<b>US NTP Report on Carcinogens: Known carcinogen</b>	
Nickel (CAS 7440-02-0)	Known carcinogen.
<b>Epidemiology</b>	Based on epidemiological studies, pre-existing pulmonary disorders may be aggravated by prolonged exposure to high concentrations of metal dust or fumes. Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.
<b>Mutagenicity</b>	No data available.

<b>Neurological effects</b>	No data available.
<b>Reproductive effects</b>	Possible reproductive hazard that may cause adverse reproductive effects based on animal data.
<b>Teratogenicity</b>	Nickel: Has shown teratogenic effects in laboratory animals. Contains material which may cause birth defects.
<b>Further information</b>	Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure. Welding or plasma arc cutting of metal and alloys can generate ozone, nitric oxides and ultraviolet radiation. Ozone overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and welders flash.

## 12. Ecological Information

### Ecotoxicological data

Components	Test Results
Lead (7439-92-1)	LC50 Rainbow trout, donaldson trout ( <i>Oncorhynchus mykiss</i> ): 1.17 mg/l 96 Hours
<b>Ecotoxicity</b>	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<b>Persistence and degradability</b>	The product is not biodegradable.
<b>Bioaccumulation / Accumulation</b>	The product contains potentially bioaccumulating substances.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Mobility in environmental media</b>	Alloys in massive forms are not mobile in the environment.

## 13. Disposal Considerations

<b>Waste codes</b>	Not regulated.
<b>Disposal instructions</b>	This material and its container must be disposed of as hazardous waste. Dispose in accordance with all applicable regulations.
<b>Waste from residues / unused products</b>	Recover and recycle, if practical. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.
<b>Contaminated packaging</b>	Not applicable.

## 14. Transport Information

### DOT

#### Basic shipping requirements:

<b>UN number</b>	UN3077
<b>Proper shipping name</b>	Environmentally hazardous substances, solid, n.o.s. (Lead RQ = 140 LBS)
<b>Hazard class</b>	9
<b>Packing group</b>	III

#### Additional information:

<b>Special provisions</b>	8, 146, B54, IB8, IP3, N20, T1, TP33
<b>Packaging exceptions</b>	155
<b>Packaging non bulk</b>	213
<b>Packaging bulk</b>	240
<b>ERG number</b>	171

### IATA

#### Basic shipping requirements:

<b>UN number</b>	3077
<b>Proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Lead)
<b>Hazard class</b>	9
<b>Packing group</b>	III
<b>Labels required</b>	9

### IMDG

#### Basic shipping requirements:

<b>UN number</b>	3077
<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)
<b>Hazard class</b>	9
<b>Packing group</b>	III



**Environmental hazards**

**Marine pollutant** Yes  
**Labels required** 9

**TDG**

**Basic shipping requirements:**

**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead)  
**Hazard class** 9  
**UN number** UN3077  
**Packing group** III  
**Marine pollutant** Yes

**Additional information:**

**Special provisions** 16



DOT



IATA



IMDG



TDG

**15. Regulatory Information**

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration**

Copper (CAS 7440-50-8) 1.0 %  
Lead (CAS 7439-92-1) 0.1 % Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.  
Nickel (CAS 7440-02-0) 0.1 %

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

Copper (CAS 7440-50-8) Listed.  
Lead (CAS 7439-92-1) Listed.  
Nickel (CAS 7440-02-0) Listed.

**US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold**

Lead (CAS 7439-92-1) 100 LBS

**CERCLA (Superfund) reportable quantity (lbs)**

Copper: 5000  
Lead: 10  
Nickel: 100

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

<b>Section 302 extremely hazardous substance</b>	No
<b>Section 311 hazardous chemical</b>	Yes
<b>Drug Enforcement Agency (DEA)</b>	Not controlled
<b>WHMIS status</b>	Controlled
<b>WHMIS classification</b>	D2A - Other Toxic Effects-VERY TOXIC D2B - Other Toxic Effects-TOXIC

**WHMIS labeling**



**Inventory status**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**State regulations**

WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Hazardous Substances (Director's): Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Lead (CAS 7439-92-1)	Listed: October 1, 1992 Carcinogenic.
Nickel (CAS 7440-02-0)	Listed: October 1, 1989 Carcinogenic.

**US - California Proposition 65 - CRT: Listed date/Developmental toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Developmental toxin.
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**US - California Proposition 65 - CRT: Listed date/Female reproductive toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Female reproductive toxin.
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**US - California Proposition 65 - CRT: Listed date/Male reproductive toxin**

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Male reproductive toxin.
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**US - Massachusetts RTK - Substance: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

Copper (CAS 7440-50-8)	500 LBS
Lead (CAS 7439-92-1)	500 LBS
Nickel (CAS 7440-02-0)	500 LBS

**US - New Jersey RTK - Substances: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - Pennsylvania RTK - Hazardous Substances: All compounds of this substance are considered environmental hazards**

Copper (CAS 7440-50-8)	LISTED
Lead (CAS 7439-92-1)	LISTED
Nickel (CAS 7440-02-0)	LISTED

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Nickel (CAS 7440-02-0)	Listed.
Tin (CAS 7440-31-5)	Listed.

**US - Pennsylvania RTK - Hazardous Substances: Special hazard**

Nickel (CAS 7440-02-0)	Special hazard.
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**16. Other Information**

<b>Recommended use</b>	Manufacturing
<b>Recommended restrictions</b>	Not assigned.
<b>Further information</b>	HMIS® is a registered trade and service mark of the NPCA. X - Specialized Handling
<b>HMIS® ratings</b>	Health: 2* Flammability: 0 Physical hazard: 0 Personal protection: X
<b>NFPA ratings</b>	Health: 2 Flammability: 0 Instability: 0
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<b>Issue date</b>	01-12-2010