



# SDS – Safety Data Sheet

## Global Harmonized System

Manufacturer's Name: Bridesburg Foundry Company Address: 901 Front Street Whitehall PA, 18052  
Emergency Telephone Number: 610-266-0900

### Section 1: PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Copper Alloy C86100  
ASTM B30-Alloy C86100

**Trade Names/Synonyms:** High Strength Manganese Bronze  
Leaded Manganese Bronze (Yellow Brass)

**Product Use:** Manufacture of copper base castings

**NFPA Hazard Rating:**

Health: 2

Fire: 1

Reactivity: 0

### Section 2: HAZARDS IDENTIFICATION

#### Physical Hazards:

Odorless, yellow/golden metal. Solid metal ingots are generally classified as “articles” under OSHA Communication Standard (29 CFR 1910.1200) and as such do not constitute a hazardous material in solid form. However, under certain processing operations such as melting, machining, grinding, welding and cutting, some hazardous elements may be emitted.

Non-combustible as supplied. Small chips, fine turnings and dust from secondary processing operations may be readily ignitable.

Explosion/fire hazards may be present when heavily concentrated dust particles are suspended in air or the metal is in a molten state and comes into contact with fluids, moisture or condensation.

The following information summarizes the possible health effects of the hazardous elements released during secondary processing. The health effects listed below are not likely to occur unless melting, welding, grinding or other secondary process releases fumes or dusts that result in overexposure.

#### Health Hazards:

Eye Damage/Irritation	Category 2B
Respiratory Sensitization	Category 1
Skin Sensitization	Category 2
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 2
Reproductive Toxicology	Category 1B
Specific Target Organ Toxicity – Single Exposure	Category 2 (respiratory system, skin)
Specific Target Organ Toxicity – Repeated Exposure	Category 2 (central nervous and respiratory systems, skin)
Acute Aquatic Toxicity	Category 2
Chronic Aquatic Toxicity	Category 2

#### Hazard Symbols:



**Signal Word:**

Danger

**Hazard Statement:**

Fumes or Dust cause eye and respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Dust particles may cause abrasive injury to the eyes. May cause allergic skin reaction or dermatitis. This product contains Lead which may damage fertility or the unborn child. Lead causes damage to the central nervous system, blood and kidneys, and may be acutely toxic. May cause systemic illnesses through repeated or prolonged exposure. Suspected of causing cancer.

**Precautionary Statements:****Prevention:**

Do not handle until all safety precautions have been read. Use personal protective equipment as required. Do not breathe dust or fumes. Do not get dust into eyes or mucous membranes. Do not eat, drink or smoke while using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.

**Response:**

If exposed or concerned: Get medical advice/attention.

IF IN EYES: Flush eyes with water or saline solution for several minutes. If irritation persists, consult a physician.

IF ON SKIN: Wash with plenty of soap and water. If skin rash or irritation develops, consult a physician. Wash contaminated clothing before reuse.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Consult a physician.

If breathing is difficult or labored, administer oxygen and seek immediate medical attention.

IF INGESTED: Rinse mouth. Do not induce vomiting. Immediately call a Poison Control Center/consult a physician.

**Storage:**

Due to the weight of metal items, care must be exercised to avoid the collapse or breakage of the packaging materials. Stack all packages properly. Failure to do so may result in injury or death due to crushing or impact. Keep dry.

**Disposal:**

Dispose of contents/container in accordance with the local, regional, national or international regulations.

**Environmental Hazards:**

Hazardous to the aquatic environment, long term hazard.

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS****Chemical Characterization:**

Mixture

**Hazardous Component:**

Chemical Name	CAS Number	Percentage
Copper	7440-50-8	66.00 – 68.00
Tin	7440-31-5	0.10 Max
Lead	7439-92-1	0.10 Max
Zinc	7440-66-6	Rem.
Iron	7440-67-7	2.00 – 4.00
Aluminum	7429-90-5	4.50 – 5.50
Manganese	7439-96-5	2.50 – 5.00

**Composition Comments:**

All percentages are in percent by weight. In the molten state, product may liberate fumes that may contain oxides of the alloying elements.

## **Section 4: FIRST AID MEASURES**

### **Inhalation**

Dust or Fume from processing: Remove person to fresh air. If respiratory irritation, dizziness, nausea or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, give artificial respiration.

### **Skin Contact**

Wash the contaminated area with soap and water. Remove contaminated clothing and wash before reuse. In case of allergic reaction or other skin irritation, consult a physician. In case of thermal burns from contact with hot or molten metal, cool rapidly with water and seek immediate medical attention. Cuts or abrasions from contact with sharp edges should be treated by cleansing and bandaging the affected area.

### **Eye Contact**

Dust or Fume from processing: Immediately flush eyes with plenty of water. Remove contact lenses if present and easy to do. Hold eyelids apart and rinse for 15 minutes. If irritation develops or persists, seek medical attention.

### **Ingestion**

If swallowed, rinse mouth. Do not induce vomiting. Call a physician or poison control center immediately. Drink plenty of water. Never give anything by mouth to an unconscious person.

## **Section 5: FIRE FIGHTING MEASURES**

### **General Fire Hazards**

This product does not present a fire or explosion hazard as shipped. Small chips, fines or dust from secondary processing may be readily ignitable.

### **Suitable Extinguishing Media**

Extinguishing powder against metal fires, carbon dioxide and dry sand. Use class D extinguishing media on dusts, fines or molten metal.

### **Unsuitable Extinguishing Media**

Do not use water or halogenated extinguishing media on burning metals as these agents will react with the burning material. Do not use water on molten metals as an explosion hazard could result.

### **Specific Hazards In Case Of Fire**

During a fire, gases hazardous to health may be formed. Do not breathe fumes. May cause sensitization by inhalation or skin contact.

### **Special Protective Equipment and Precaution for Fire Fighters**

Wear an approved positive pressure, self-contained breathing apparatus and full protective clothing.

## **Section 6: ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions and Protective Equipment**

Minimize generation of dust. Ensure adequate ventilation. Use appropriate protective equipment to avoid inhalation and eye contact if dust is generated.

### **Environmental Precautions**

No notable environmental hazard is anticipated from the release of this material in bulk solid form on land. Prevent product from entering drains. Do not flush into surface water or storm drains.

### **Methods and Materials for Containment and Clean Up**

Metal turnings, chips, grindings, solid pieces, etc. are collected and recycled. Accumulations of dust should be

vacuumed or wet-swept to prevent airborne exposure. If product is in molten state, contain spills using dry sand as a dam. Allow molten materials to cool and solidify then collect by mechanical means into a suitable container for recycling or disposal.

## Section 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Avoid contact with skin, eyes, and clothing. Avoid dust creation. Wear personal protective equipment when handling. Avoid contact with sharp edges. Special care should be taken when handling molten metals. Always wear proper safety equipment. Do not smoke, eat or drink when handling this product. Observe good industrial hygiene.

### Conditions for Safe Storage, Including Any Incompatibilities

Keep material dry. Metal in storage can become wet from condensation. It must be thoroughly dried before adding to molten metal. Avoid contact with strong acids or oxidizing agents which can react and liberate highly flammable hydrogen gas. Practice good housekeeping when stacking containers. Metal is heavy and can cause injuries if allowed to fall onto body parts.

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Component Exposure Limits:

#### Copper (Cu) (CAS # 7440-50-8)

ACGIH: 0.2 mg/m<sup>3</sup> 8-hour TLV 8-hour TWA (fume); 1 mg/m<sup>3</sup> TWA (dust and mist)  
OSHA: 0.1 mg/m<sup>3</sup> PEL 8-hour TWA (fume); 1 mg/m<sup>3</sup> TWA (dust and mist)  
NIOSH: REL 1 mg/m<sup>3</sup> 8-hour TWA (dust and mist)

#### Tin (Sn) (CAS # 7440-31-5)

ACGIH: 2 mg/m<sup>3</sup> TLV 8-hour TWA  
OSHA: 2 mg/m<sup>3</sup> PEL 8-hour TWA  
NIOSH: REL 2 mg/m<sup>3</sup> 8-hour TWA

#### Lead (Pb) (CAS # 7439-92-1)

ACGIH: 0.05 mg/m<sup>3</sup> TLV 8-hour TWA  
OSHA: 0.05 mg/m<sup>3</sup> PEL 8-hour TWA; 30 ug/100 ml blood (see 29 CFR 1910.1025)  
NIOSH: REL 0.03 mg/m<sup>3</sup> 8-hour TWA

#### Zinc (Zn) (CAS # 7440-66-6)

ACGIH: 2 mg/m<sup>3</sup> TLV 8-hour TWA (oxide fume – respirable fraction); 10 mg/m<sup>3</sup> STEL  
OSHA: 5 mg/m<sup>3</sup> PEL 8-hour TWA (oxide fume); 15 mg/m<sup>3</sup> TWA (total dust); 5 mg/m<sup>3</sup> (respirable fraction)

#### Iron (Fe) (CAS # 7439-89-6)

ACGIH: 5 mg/m<sup>3</sup> TLV 8-hour TWA (oxide respirable fraction)  
OSHA: 10 mg/m<sup>3</sup> PEL 8-hour TWA (oxide fume)

#### Aluminum (Al) (CAS # 7429-90-5)

ACGIH: 1 mg/m<sup>3</sup> TLV 8-hour TWA (respirable fraction)  
OSHA: 5 mg/m<sup>3</sup> PEL 8-hour TWA (respirable dust); 15 mg/m<sup>3</sup> (total dust)  
NIOSH: REL 1 mg/m<sup>3</sup> 8-hour TWA (fume)

#### Manganese (Mn) (CAS # 7439-96-5)

ACGIH: 0.02 mg/m<sup>3</sup> TLV 8-hour TWA (respirable fraction)  
OSHA: 5 mg/m<sup>3</sup> Ceiling (fume)  
NIOSH: REL 5 mg/m<sup>3</sup> 8-hour TWA (respirable dust); 5 mg/m<sup>3</sup> (fume); 10 mg/m<sup>3</sup> (total)

## Occupational Exposure Limits

### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Lead (CAS 7439-92-1) 0.05 mg/m<sup>3</sup>; 30 ug/100 mL Blood

Note: Women of childbearing potential, whose blood Pb exceeds 10 µg/dl, are at risk of delivering a child with a blood Pb over the current Centers for Disease Control guideline of 10 µg/dl. If the blood Pb of such children remains elevated, they may be at increased risk of cognitive deficits. The blood Pb of these children should be closely monitored and appropriate steps should be taken to minimize the child's exposure to environmental lead.

(CDC: Preventing Lead Poisoning in Young Children, October 1991; See BEI<sup>®</sup> and TLV<sup>®</sup> Documentation for Lead).

## Biological Limit Values

### US. ACGIH BEIs Biological Exposure Indices

Lead (CAS 7439-92-1) BEI-30 ug/100mL **Determinant-** Lead in Blood **Sampling Time-** Consult 29 CFR 1910.1025

## Engineering Controls

Provide adequate ventilation. Use local exhaust or general ventilation as required to minimize exposure to dust and fume. Observe Occupational Exposure Limits described above.

## Personal Protective Equipment (PPE)



### Eye/Face Protection

Safety glasses with side shields must be worn when performing any secondary processing such as cutting, grinding, sawing, etc. Wear dust resistant goggles where there is a danger of airborne dust. In addition to protective eyewear, full face shields are recommended. Welding shields/goggles are required when welding this product. See ANSI Z49.1 "Safety in Welding and Cutting" and OSHA regulation 29 CFR 1910.252

### Hand Protection

Use protective industrial type gloves to protect against sharp edges and abrasions. When working at elevated temperatures use proper protective gloves to prevent thermal burns. Consult OSHA 29 CFR 1910.138

### Respiratory Protection

Use appropriate NIOSH/OSHA approved respiratory protection. Positive-pressure supplied air respirators may be required in areas with excessive contaminant concentrations. Consult OSHA 29 CFR 1910.134 for respiratory protection requirements and 29 CFR 1910.1025 for regulations on respiratory protection against airborne lead (Pb).

### Other Protection

Wear appropriate garments to protect against thermal burns such as fire coats, aprons and leggings when necessary. Head protection and foot protection recommended. Hearing protection may be required.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical Appearance:</b>	Yellow/golden metal in various shapes and sizes.
<b>Physical State:</b>	Solid below melting point, liquid above melting point.
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	Not Applicable
<b>pH:</b>	Not Applicable
<b>Melting Point/Freezing Point:</b>	Liquidus 1725°F, Solidus 1650° F, Molten state operating temperature is 1750°-2100°F
<b>Boiling Point(F):</b>	Copper 4703
	Tin 4120
	Lead 3137
	Zinc 1663
	Iron 5430

Aluminum 4442  
Manganese 3806

**Flash Point:** Not Applicable  
**Evaporation Rate:** Not Applicable  
**Flammability:** Not Applicable  
**Upper/Lower Flammability:** Not Applicable  
**Upper/Lower Explosive Limits:** Not Applicable  
**Vapor Pressure:** Not Applicable  
**Vapor Density:** Not Applicable  
**Density:** 0.288 lb/in<sup>3</sup> at 68° F  
**Specific Gravity (Water = 1)** 7.97  
**Solubility in Water:** Not Applicable  
**Partition Coefficient:** Not Applicable  
**Auto Ignition Temperature:** Not Applicable  
**Decomposition Temperature:** Not Applicable

## Section 10: STABILITY AND REACTIVITY

**Reactivity:** Stable at normal conditions  
**Hazardous Reaction Potential:** Hazardous polymerization will not occur  
**Conditions to Avoid:** Molten metals will react with water in a potentially violent steam explosion.  
**Materials to Avoid:** Contact with acids or strong oxidizers will release flammable hydrogen gas. Avoid Ammonia, Acetylene, Halogens and Mercury  
**Hazardous Decomposition Products:** Secondary processing by release dusts. Elevated temperature by release fumes or oxides of metals.

## Section 11: TOXICOLOGICAL INFORMATION

**Exposure Routes:**  
For Dust: ingestion, eye contact, inhalation  
For Fume: inhalation, eye contact  
For Solids: the solid product is not hazardous

### Health Effects Associated With Individual Ingredients

**Copper:** Can cause irritation of eyes, mucous membranes, skin and respiratory tract. Industrial exposure to copper fumes results in metal fume fever with atrophic changes in nasal mucous membranes.

**Chronic Overexposure:** Can cause a reduction in the number of red blood cells (anemia), skin abnormalities (pigmentation changes) and hair discoloration. Chronic poisoning results in Wilson's disease characterized by a hepatic cirrhosis, brain damage, demyelination, renal disease and copper deposition in the cornea. Passes through the placenta and excreted in maternal milk.

**Acute Toxicity:** LD50/oral of copper sulfate is 472 mg/kg in rats. Toxic response in humans has been observed at 11 mg/kg.

**Tin:** Tin powder is moderately irritating to the eyes, mucous membranes and respiratory tract due to mechanical action.

**Chronic Overexposure:** Can cause benign lung disease (stannosis).

**Acute Toxicity:** LD50/oral/rat > 2000 mg/kg bodyweight LD50/dermal/rat > 2000 mg/kg bodyweight  
LC50/inhalation/4h/rat > 5 g/m<sup>3</sup>.

**Lead:** Can cause irritation of eyes and upper respiratory tract.

**Acute Overexposure:** Can cause nausea and stomach cramps, weakness and fatigue.

**Chronic Overexposure:** Can cause abdominal cramps, severe anemia, persistent vomiting, peripheral neuropathy, kidney damage, liver damage, damage to the central nervous system and blood forming organs. Causes reproductive harm, can cause reduced fertility and fetal toxicity in pregnant women. Listed in IARC/NTP monographs as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as possibly carcinogenic to humans by IARC-group 2B.

**Acute Toxicity:** LD50: Acute: 74 mg/kg (Mouse). LC50: Acute: 93 mg/kg (Rat).

**Zinc:** Exposure to zinc oxide fume can cause metal fume fever. Symptoms resemble influenza with chills and nausea. May cause irritation to the eyes, mucous membranes and respiratory tract.

**Chronic Overexposure:** There is no chronic form of metal fume fever but in rare instances an acute incident may be followed by complaints such as bronchitis or pneumonia. Some workers may develop a short-term immunity (resistance) so that repeated exposure to zinc oxide fumes does not cause metal fume fever. This immunity (resistance) however is quickly lost after short absences from work (weekends or vacations). Prolonged or repeated skin contact with zinc dust or powder may cause dryness, irritation and cracking (dermatitis) since zinc is astringent and may tend to draw moisture from the skin. Zinc dust is not listed as a human carcinogen by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), American Conference of Governmental Industrial Hygienists (ACGIH) or the European Union (EU).

**Iron:** Exposure to iron oxide or dust can cause irritation to the eyes, mucous membranes and respiratory tract.

**Chronic Overexposure:** Can result in siderosis which causes a shortness of breath and coughing tendencies.

**Acute Toxicity:** LD50/oral/rat: 3000 mg/kg bodyweight.

**Aluminum:** Can cause irritation of the eyes, mucous membranes and respiratory tract.

**Chronic Overexposure:** Can cause shortness of breath, tightness of chest, headache, cough, nausea and narrowing of airways.

**Acute Toxicity:** LD50/oral/rat > 2000 mg/kg; LC50/inhalation/rat > 2.3 mg/L.

**Manganese:** Dusts in high concentrations can cause irritation of the eyes and throat. May cause nose to bleed. May cause metal fume fever characterized by flu-like symptoms.

**Chronic Overexposure:** Repeated or prolonged exposure may cause degenerative changes in the brain. May effect the central nervous system, blood, metabolism and cause pulmonary fibrosis. Can cross placenta.

**Acute Toxicity:** LD50/oral/rat 9000 mg/kg.

### **Carcinogenicity**

Possible cancer hazard – may cause cancer based on animal data.

IARC Monographs. Overall Evaluation of Carcinogenicity

Lead (CAS 7439-92-1) 2B Possibly carcinogenic to humans

Nickel (CAS 7440-02-0) 1 Carcinogenic to humans

NTP Report on Carcinogens

Nickel Compounds Known to be Human Carcinogen

Nickel, Metallic Reasonably suspected to be a human carcinogen

## **Section 12: ECOLOGICAL INFORMATION**

### **General Environmental Effects**

No notable environmental hazard is expected from spills of solid material on land. Avoid aquatic contact, recover metal from aquatic environments. Toxic to aquatic life with long lasting effects.

### **Persistence and Degradability**

The product is not biodegradable.

### **Bioaccumulative Potential:**

The product contains potentially bio accumulating elements.

### **Mobility in Soil**

Metals in solid form are not mobile in the environment. Dissolved metals may migrate through soil.

### **Ecotoxicity**

**Copper** 96 Hr. LC50: Pimephales promelas: 23 ug/L  
96 Hr. LC50: Oncorhynchus mykiss: 13.8 ug/L  
96 Hr. LC50: Lepomis macrochirus: 236 ug/L

72 Hr. EC50: Scenedesmus subspicatus: 120 ug/L

48 Hr. EC50: Daphnia magna: 0.03 mg/L

**Lead** 96 Hr. LC50: Pimephales promelas: 6.5 mg/L  
48 Hr. EC50: Water flea: 600 ug/L  
48 Hr. LC50: Lepomis macrochirus: 2-5 mg/L  
96 Hr. LC50: Cyprinus carpio: 0.44 mg/L  
48 Hr. EC50: Daphnia magna: 0.0244 mg/L

**Nickel** 96 Hr. LC50: Rainbow Trout: 31.7 mg/L  
96 Hr. LC50: Fathead Minnow: 3.1 mg/L  
96 Hr. LC50: Cyprinus carpio: 0.44 mg/L  
48 Hr. EC50: Daphnia magna: 600 ug/L

**Zinc** 96 Hr. LC50: Pimephales promelas: 6.4 mg/L  
96 Hr. EC50: Selenastrum capricornutum: 30 ug/L  
72 Hr. EC50: Water flea: 5 ug/L

**Iron** 96 Hr. LC50: Morone saxatilis: 13.6 mg/L (static)

## Section 13: DISPOSAL CONSIDERATIONS

### Disposal Instructions

This product should be reused or recycled. If reuse or recycling is not possible, then this material must be disposed of as a hazardous waste. Dispose in accordance with all applicable local, state, province and federal regulations. Local regulations may be more stringent than regional or national requirements. It is the responsibility of the waste generator to determine the hazardous characteristics of the material to determine proper waste identification and disposal protocols. Characterize with applicable regulations such as 40 CFR 261 or state equivalent.

### Component Waste Numbers

It is the responsibility of the waste generator to determine the proper waste identification numbers and dispose of in compliance with applicable regulations. Refer to 40 CFR 261. Possible US EPA Waste Numbers: D008, D210, D220 and D230.

## Section 14: TRANSPORTATION INFORMATION

### US DOT

Not regulated as a hazardous material by DOT

### IATA

Not regulated as a dangerous good

### IMDG

Not regulated as a dangerous good

### Special Precautions for User

Not applicable

### Transport in Bulk According to Annex II of Marpol 73/78 and the IBC Code

Not Applicable

### Notes:

When "Not Regulated" enter the proper freight classification, SDS Number and Product Name on the shipping paperwork.

## Section 15: REGULATORY INFORMATION

### US Federal Regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

### General Product Information



In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone depleting chemicals.

### Component Analysis – US Federal

This product contains one or more of the following chemicals required to be identified under SARA section 302 (40 CFR 355 Appendix A), SARA section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4)

#### **Copper (7440-50-8)**

SARA 313 1.0% de minimis concentration  
CERCLA 5,000 lb (2,270 kg) final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released are larger than 100 micrometers).

#### **Lead (7439-92-1)**

SARA 313 0.1% Supplier notification limit, 0.1% de minimis concentration when contained in brass or bronze alloys  
CERCLA 10 lb (4.54 kg) final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released are larger than 100 micrometers).

#### **Zinc (7440-66-6)**

SARA 313 1.0% de minimis concentration (dust or fume only)  
CERCLA 1,000 lb (454 kg) final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released are larger than 100 micrometers).

#### **Antimony (7440-36-0)**

CERCLA 5,000 lb (2,270 kg) final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released are larger than 100 micrometers).

#### **Nickel (7440-02-0)**

SARA 313 0.1% de minimis concentration  
CERCLA 100 lb (45.4 kg) final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released are larger than 100 micrometers).

#### **Manganese (7439-96-5)**

SARA 313 1.0% de minimis concentration

### Component Analysis – State

Pennsylvania: “Special Hazardous Substance”: Nickel

California: Chemical(s) known to the State of California to cause cancer: Lead and Lead Compounds

California: Chemical(s) known to the State of California to cause reproductive toxicity: Lead

#### **US California Right to Know – Substance List**

Copper (7440-50-8)  
Tin (7440-31-5)  
Lead (7439-92-1)  
Zinc (7440-66-6)  
Iron (7439-89-6)  
Antimony (7440-36-0)  
Nickel (7440-02-0)  
Aluminum (7429-90-5)  
Manganese (7440-96-5)

#### **US Massachusetts Right to Know – Substance List**

Copper (7440-50-8)  
Tin (7440-31-5)  
Lead (7439-92-1)  
Zinc (7440-66-6)

Antimony (7440-36-0)  
Nickel (7440-02-0)  
Aluminum (7429-90-5)  
Manganese (7440-96-5)  
Silicon (7440-21-3)

**US Minnesota – RTK**

Copper (7440-50-8)  
Tin (7440-31-5)  
Lead (7439-92-1)  
Antimony (7440-36-0)  
Nickel (7440-02-0)  
Aluminum (7429-90-5)  
Manganese (7440-96-5)  
Silicon (7440-21-3)

**US New Jersey Worker and Community Right to Know Act**

Copper (7440-50-8)  
Tin (7440-31-5)  
Lead (7439-92-1)  
Zinc (7440-66-6)  
Antimony (7440-36-0)  
Nickel (7440-02-0)  
Aluminum (7429-90-5)  
Manganese (7440-96-5)  
Silicon (7440-21-3)

**US Pennsylvania RTK – Hazardous Substances**

Copper (7440-50-8)  
Tin (7440-31-5)  
Lead (7439-92-1)  
Zinc (7440-66-6)  
Antimony (7440-36-0)  
Nickel (7440-02-0)  
Aluminum (7429-90-5)  
Manganese (7440-96-5)  
Silicon (7440-21-3)  
Cobalt (7440-48-4)

**US Rhode Island – RTK**

Copper (7440-50-8)  
Tin (7440-31-5)  
Lead (7439-92-1)  
Zinc (7440-66-6)  
Antimony (7440-36-0)  
Nickel (7440-02-0)  
Aluminum (7429-90-5)  
Manganese (7440-96-5)  
Silicon (7440-21-3)  
Cobalt (7440-48-4)

US California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

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

WARNING! This product contains a chemical known to the State of California to cause reproductive/developmental effects.

**Component Analysis – Other**

**Canada WHMIS IDL**

Copper (7440-50-8)	1% Minimum Concentration
Tin (7440-31-5)	1% Minimum Concentration
Lead (7439-92-1)	0.1% Minimum Concentration
Nickel (7440-02-0)	0.1% Minimum Concentration
Aluminum (7429-90-5)	1% Minimum Concentration
Manganese (7440-96-5)	1% Minimum Concentration

**United States & Puerto Rico Toxic Substances Control Act (TSCA)**

Copper (7440-50-8)
Tin (7440-31-5)
Lead (7439-92-1)
Zinc (7440-66-6)
Iron (7439-89-6)
Antimony (7440-36-0)
Nickel – (7440-02-0)
Aluminum (7429-90-5)
Manganese (7440-96-5)
Silicon (7440-21-3)

**Canada Domestic Substances List (DSL)**

Copper (7440-50-8)
Tin (7440-31-5)
Lead (7439-92-1)
Zinc (7440-66-6)
Iron (7439-89-6)
Antimony (7440-36-0)
Nickel (7440-02-0)
Aluminum (7429-90-5)
Manganese (7440-96-5)
Silicon (7440-21-3)

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

Copper (7440-50-8)
Tin (7440-31-5)
Lead (7439-92-1)
Zinc (7440-66-6)
Iron (7439-89-6)
Antimony (7440-36-0)
Nickel (7440-02-0)
Aluminum (7429-90-5)
Manganese (7440-96-5)
Silicon (7440-21-3)

**Section 16: OTHER INFORMATION**

**Issue Date** June 2016  
**Revision Date** None

**References:**

IARC Monographs. Overall Evaluation of Carcinogenicity  
NIOSH Pocket Guide to Chemical Hazards  
“Threshold Limit Values of Chemical Substances in Work Environment” – ACGIH  
National Toxicity Program (NTP) Reports on Carcinogens

**Disclaimer:**

The above information is provided for the sole purpose of complying with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The information is given in good faith and is believed to be correct, but without guarantee. We do not assume responsibility for the results of its use.