Safety Data Sheet (SDS)

According to Regulation (EC) No 1907/2006 (REACH)

Section 1: Identification of the Substance/Mixture and the Company/Undertaking

1.1. Product Identifier

Product Form: Mixture
Product Name: Copper/Copper Alloys
Synonyms: Cu

1.2. Intended Use of the Product Use of the Substance/Mixture:

No use is specified.

1.3. Name, Address, and Telephone of the Responsible Party

Distributor:

Materials Science International, Inc.
1660 Georgesville Road
Columbus, OH 43228-3620, USA
Phn# 1-614-870-0400
Fax# 1-614-878-6000

1.4. Chemtrec: (800)424-9300 or Poison Center: (800)562-8236

Section 2: Hazards Identification

2.1. Classification of the Substance or Mixture

Classification (GHS-US) Not classified

2.2. Label Elements

GHS-US Labeling No labeling applicable

2.3. Other Hazards

This product is present in a massive form as an alloy. It does not present the same hazards when the individual components are in their powdered forms. The materials present in this product in their powdered forms present aquatic toxicity to the environment, pyrophoricity, flammability, self-heating capabilities, carcinogenicity, water reactivity, and acute toxicity. When processed or where dust is generated a combustible dust hazard may be present. Avoid generating dust, generating sparks, ignition sources, and take all precautions.

Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

Under normal use and handling of the solid form of this material there are few health hazards. Cutting, welding, melting, grinding etc. of these materials will produce dust, fume or particulate containing the component elements of these materials. Exposure to the dust, fume or particulate of these materials may present significant health hazards. Exposure

to dust or fume may cause irritation of the eyes, skin and respiratory tract. Fine particulates dispersed in air may present an explosion hazard.

2.4. Unknown Acute Toxicity (GHS-US) No data available

Section 3: Composition / Information on Ingredient

Substances - Not applicable

Name	Product Identifier	% (w/w)	Classification (GHS-US)
Copper	(CAS No) 7440-50-8	45 - 60, 60 - 99	Comb. Dust Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Zinc oxide	(CAS No) 1314-13-2	< 0.1, 0.1 - 1, 1 - 5, 5 -10, 10 - 30, 30 - 40	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Nickel	(CAS No) 7440-02-0	< 0.1, 0.1 - 1, 1 - 5, 5 -10, 10 - 30,	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372
30 - 33		Aquatic Acute 1, H400 Aquatic Chronic 3, H412	
Lead	(CAS No) 7439-92-1	< 0.1, 0.1 - 1, 1 - 5, 5 -10, 10 - 16	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Carc. 1B, H350 Repr. 1A, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Aluminum	(CAS No) 7429-90-5	< 0.1, 0.1 - 1, 1 - 5, 5 -10, 10 - 14	Comb. Dust Flam. Sol. 1, H228 Water-react. 2, H261
Tin	(CAS No) 7440-31-5	< 0.1, 0.1 - 1, 1 - 5, 5 -10, 10 - 14	Comb. Dust
Iron oxide	(CAS No) 1309-37-1	< 0.1, 0.1 - 1, 1 - 5, 5 -6	Not classified
Manganese	(CAS No) 7439-96-5	< 0.1, 0.1 - 1, 1 - 5	Comb. Dust
Silicon	(CAS No) 7440-21-3	< 0.1, 0.1 - 1, 1 - 5	Comb. Dust
Thallium	(CAS No) 7440-28-0	< 0.1, 0.1 - 1, 1 - 4	Acute Tox. 2 (Oral), H300 Acute Tox. 2 (Inhalation), H330 Muta. 1B, H340 Repr. 1A, H360 STOT RE 2, H373
Cobalt	(CAS No) 7440-48-4	< 0.1, 0.1 - 1, 1 - 3	Acute Tox. 4 (Oral), H302 Acute Tox. 1 (Inhalation:dust,mist), H330 Eye Irrit. 2A, H319 Resp. Sens. 1B, H334 Skin Sens. 1, H317 Carc. 2, H351 Repr. 2, H361 Aquatic Acute 3, H402 Aquatic Chronic 1, H410
Beryllium	(CAS No) 7440-41-7	< 0.1, 0.1 - 1, 1 - 2	Acute Tox. 2 (Inhalation:dust,mist), H330 Carc. 2, H351 STOT RE 1, H372

Cadmium	(CAS No) 7440-43-9	< 0.1, 0.1 - 1	Acute Tox. 4 (Oral), H302 Acute Tox. 2 (Inhalation:dust,mist), H330 Muta. 2, H341 Carc. 1B, H350 Repr. 2, H361 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Arsenic	(CAS No) 7440-38-2	< 0.1, 0.1 - 0.5	Acute Tox. 2 (Oral), H300 Acute Tox. 3 (Inhalation:dust,mist), H331 Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Sulfur dioxide	(CAS No) 7446-09-5	< 0.1, 0.1 - 0.3	Compressed gas, H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318
Zirconium	(CAS No) 7440-67-7	< 0.1, 0.1 - 0.5	Flam. Sol. 1, H228

Full text of H-phrases: see section 16

More than one of the ranges of concentration prescribed by Controlled Products Regulations has been used where necessary due to varying composition.

Section 4: First Aid Measures

4.1. Description of First Aid Measures

General: If exposed or concerned: Get medical advice/attention. Never give anything by mouth to an unconscious person.

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Skin Contact: Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance. Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Obtain medical attention if irritation persists.

Eye Contact: Removal of solidified molten material from the eyes requires medical assistance. Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER/doctor/physician if you feel unwell.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Welding, cutting, or processing this material may release dust or fumes that are hazardous.

Inhalation: Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

Skin Contact: May cause an allergic skin reaction. Dust from physical alteration of this product causes skin irritation.

Causes severe skin burns. Contact with fumes or metal powder will irritate skin. Contact with hot, molten metal will cause thermal burns. Dust may cause irritation in skin folds or by contact in combination with tight clothing. Mechanical damage via flying particles and chipped slag is possible.
Eye Contact: Dust may cause mechanical irritation to eyes, nose, throat, and lungs.
Ingestion: Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms: In massive form, no hazard exists. If physically altered to present slivers, ribbons, dusts or fumes from molten material: Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. Inhalation of Nickel compounds has been shown in studies to provide an increased incidence of cancer of the nasal cavity, lung and possibly larynx in nickel refinery workers. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic. Manganese : Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. Silicon : Can cause chronic bronchitis and narrowing of the airways. Lead: Exposure can result in lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; encephalopathy; kidney disease; hypertension. May cause genetic defects. May damage fertility. May damage the unborn child. Beryllium: Over time inhalation of dust and fumes from this product in certain individuals may cause Chronic Beryllium Disease. This causes allergic reactions in sensitized individuals in the lungs, possibly resulting in pulmonary fibrosis, and can even be fatal. Beryllium is a known carcinogen. Take appropriate precautions for workers exposure to Beryllium compounds, avoid breathing dust, and fumes from this product. Tin: Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure to tin dusts and fume may result in "stannosis", a mild form of pneumoconiosis.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed
If exposed or concerned, get medical advice and attention.

Section 5: Fire / Fighting Measures

5.1. Extinguishing Media
Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire. Dry sand; Class D Extinguishing Agent (for metal powder fires).

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire. Do not use water when molten material is involved, may react violently or explosively on contact with water.

5.2. Special Hazards Arising From the Substance or Mixture

5.3. Advice for Firefighters Precautionary Measures Fire: Under fire conditions, hazardous fumes will be present.
Firefighting Instructions: Exercise caution when fighting any chemical fire.
Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.
Hazardous Combustion Products: Oxides of tin. Oxides of nickel. Oxides of copper. Chromium oxides. Oxides of silicone and carbon. Oxides of lead. Oxides of aluminum. Cobalt oxide.

Reference to Other Sections
Refer to section 9 for flammability properties.

Section 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures General Measures:
Do not handle until all safety precautions have been read and understood. Do not breathe vapors from molten product.

6.1.1. For Non-Emergency Personnel
Protective Equipment: Use appropriate personal protection equipment (PPE).
Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel
Protective Equipment: Equip cleanup crew with proper protection.
Emergency Procedures: Ventilate area.

6.2. Environmental Precautions
Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up
For Containment: Contain and collect as any solid.
Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. For particulates and dust: Avoid actions that cause dust to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up.

6.4. Reference to Other Sections
See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

Section 7: Handling and Storage

7.1. Precautions for Safe Handling

Additional Hazards When Processed:
May generate flammable/explosive dusts or turnings when brushed, machined or ground. Use care during processing to minimize generation of dust. Where excessive dust may result, use approved respiratory protection equipment. Heating of product can release toxic or irritating fumes; ensure proper ventilation is employed, proper precautions are enforced, and applicable regulations are followed. Inhalation of fumes may cause metal fume fever.

Advice on safe handling: Use personal protection recommended in Section 8. Avoid generation of dust. Be familiar with the requirements set forth in the OSHA Lead Standard, 29 CGR 1910.1025.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in a dry, cool and well-ventilated place.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. Alkalis. Metal oxides. Water, humidity. Corrosive substances in contact with metals may produce flammable hydrogen gas.

7.3. Specific End Use(s) - No use is specified.

Section 8: Exposure Controls / Personal Protection

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Aluminum (7429-90-5)		
Mexico	OEL TWA (mg/m³)	10 mg/m³ (dust)
USA ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (respirable fraction)
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)
Alberta	OEL TWA (mg/m³)	10 mg/m³ (dust)
British Columbia	OEL TWA (mg/m³)	1.0 mg/m³ (respirable)
Manitoba	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (metal dust)
Newfoundland & Labrador	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
Nova Scotia	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
Nunavut	OEL STEL (mg/m³)	20 mg/m³
Nunavut	OEL TWA (mg/m³)	10 mg/m³
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³
Ontario	OEL TWA (mg/m³)	1 mg/m³ (respirable)
Prince Edward Island	OEL TWA (mg/m³)	1 mg/m³ (respirable fraction)
Québec	VEMP (mg/m³)	10 mg/m³
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (dust)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (dust)
British Columbia	OEL TWA (mg/m³)	10 mg/m³ (total dust)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³
Nunavut	OEL TWA (mg/m³)	5 mg/m³ (respirable mass)
Northwest Territories	OEL TWA (mg/m³)	5 mg/m³ (respirable mass)

Ontario	OEL TWA (mg/m³)	10 mg/m³ (total dust)
Québec	VEMP (mg/m³)	10 mg/m³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³
Yukon	OEL STEL (mg/m³)	20 mg/m³
Yukon	OEL TWA (mg/m³)	30 mppcf

Copper (7440-50-8)		
Mexico	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Mexico	OEL STEL (mg/m³)	2 mg/m³ (fume) 2 mg/m³ (dust and mist)
USA ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³ (fume)
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³ (fume) 1 mg/m³ (dust and mist)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³ (dust and mist) 0.1 mg/m³ (fume)
USA IDLH	US IDLH (mg/m³)	100 mg/m³ (dust, fume and mist)
Mexico	OEL TWA (mg/m³)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)
Mexico	OEL STEL (mg/m³)	2 mg/m³ (fume) 2 mg/m³ (dust and mist)
USA ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³ (fume)
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³ (fume) 1 mg/m³ (dust and mist)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³ (dust and mist) 0.1 mg/m³ (fume)
USA IDLH	US IDLH (mg/m³)	100 mg/m³ (dust, fume and mist)
Alberta	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	1 mg/m³ (dust and mist)
Manitoba	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Newfoundland & Labrador	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	0.6 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Northwest Territories	OEL STEL (mg/m³)	0.6 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Québec	VEMP (mg/m³)	0.2 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³ (fume)
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³ (fume)
Yukon	OEL STEL (mg/m³)	0.2 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	0.2 mg/m³ (fume)

Cobalt (7440-48-4)		
Mexico	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
USA ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³ (dust and fume)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.05 mg/m³ (dust and fume)

USA IDLH	US IDLH (mg/m^3)	20 mg/m^3 (dust and fume)
Alberta	OEL TWA (mg/m^3)	0.02 mg/m^3
British Columbia	OEL TWA (mg/m^3)	0.02 mg/m^3
Manitoba	OEL TWA (mg/m^3)	0.02 mg/m^3
New Brunswick	OEL TWA (mg/m^3)	0.02 mg/m^3
Newfoundland & Labrador	OEL TWA (mg/m^3)	0.02 mg/m^3
Nova Scotia	OEL TWA (mg/m^3)	0.02 mg/m^3
Nunavut	OEL STEL (mg/m^3)	0.3 mg/m^3 (dust and fume)
Nunavut	OEL TWA (mg/m^3)	0.1 mg/m^3 (metal-dust and fume)
Northwest Territories	OEL STEL (mg/m^3)	0.3 mg/m^3 (dust and fume)
Northwest Territories	OEL TWA (mg/m^3)	0.1 mg/m^3 (dust and fume)
Ontario	OEL TWA (mg/m^3)	0.02 mg/m^3
Prince Edward Island	OEL TWA (mg/m^3)	0.02 mg/m^3
Québec	VEMP (mg/m^3)	0.02 mg/m^3
Saskatchewan	OEL STEL (mg/m^3)	0.06 mg/m^3
Saskatchewan	OEL TWA (mg/m^3)	0.02 mg/m^3
Yukon	OEL STEL (mg/m^3)	0.15 mg/m^3 (dust and fume)
Yukon	OEL TWA (mg/m^3)	0.05 mg/m^3 (dust and fume)

Zinc oxide (1314-13-2)		
Mexico	OEL TWA (mg/m^3)	5 mg/m^3 (fume) 10 mg/m^3 (dust)
Mexico	OEL STEL (mg/m^3)	10 mg/m^3 (fume)
USA ACGIH	ACGIH TWA (mg/m^3)	2 mg/m^3 (respirable fraction)
USA ACGIH	ACGIH STEL (mg/m^3)	10 mg/m^3 (respirable fraction)
USA OSHA	OSHA PEL (TWA) (mg/m^3)	5 mg/m^3 (fume) 15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)
USA NIOSH	NIOSH REL (TWA) (mg/m^3)	5 mg/m^3 (dust and fume)
USA NIOSH	NIOSH REL (STEL) (mg/m^3)	10 mg/m^3 (fume)
USA NIOSH	NIOSH REL (ceiling) (mg/m^3)	15 mg/m^3 (dust)
USA IDLH	US IDLH (mg/m^3)	500 mg/m^3
Alberta	OEL STEL (mg/m^3)	10 mg/m^3 (respirable)
Alberta	OEL TWA (mg/m^3)	2 mg/m^3 (respirable)
British Columbia	OEL STEL (mg/m^3)	10 mg/m^3 (respirable)
British Columbia	OEL TWA (mg/m^3)	2 mg/m^3 (respirable)
Manitoba	OEL STEL (mg/m^3)	10 mg/m^3 (respirable fraction)
Manitoba	OEL TWA (mg/m^3)	2 mg/m^3 (respirable fraction)
New Brunswick	OEL STEL (mg/m^3)	10 mg/m^3 (fume)
New Brunswick	OEL TWA (mg/m^3)	10 mg/m^3 (particulate matter containing no Asbestos and <1% Crystalline silica, dust)
Newfoundland & Labrador	OEL STEL (mg/m^3)	10 mg/m^3 (respirable fraction)
Newfoundland & Labrador	OEL TWA (mg/m^3)	2 mg/m^3 (respirable fraction)
Nova Scotia	OEL STEL (mg/m^3)	10 mg/m^3 (respirable fraction)
Nova Scotia	OEL TWA (mg/m^3)	2 mg/m^3 (respirable fraction)
Nunavut	OEL STEL (mg/m^3)	10 mg/m^3 (fume)
Nunavut	OEL TWA (mg/m^3)	5 mg/m^3 (fume)
Northwest Territories	OEL STEL (mg/m^3)	10 mg/m^3 (fume)
Northwest Territories	OEL TWA (mg/m^3)	5 mg/m^3 (fume)
Ontario	OEL STEL (mg/m^3)	10 mg/m^3 (respirable)
Ontario	OEL TWA (mg/m^3)	2 mg/m^3 (respirable)
Prince Edward Island	OEL STEL (mg/m^3)	10 mg/m^3 (respirable fraction)
Prince Edward Island	OEL TWA (mg/m^3)	2 mg/m^3 (respirable fraction)

Québec	VECD (mg/m³)	10 mg/m³ (fume)
Québec	VEMP (mg/m³)	10 mg/m³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m³)	10 mg/m³ (dust and fume, respirable fraction)
Saskatchewan	OEL TWA (mg/m³)	2 mg/m³ (dust and fume, respirable fraction)
Yukon	OEL STEL (mg/m³)	10 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	5 mg/m³ (fume)

Tin (7440-31-5)		
Mexico	OEL TWA (mg/m³)	2 mg/m³
Mexico	OEL STEL (mg/m³)	4 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	2 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	2 mg/m³
USA IDLH	US IDLH (mg/m³)	100 mg/m³
Alberta	OEL TWA (mg/m³)	2 mg/m³
British Columbia	OEL TWA (mg/m³)	2 mg/m³
Manitoba	OEL TWA (mg/m³)	2 mg/m³
New Brunswick	OEL TWA (mg/m³)	2 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	2 mg/m³
Nova Scotia	OEL TWA (mg/m³)	2 mg/m³
Ontario	OEL TWA (mg/m³)	2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	2 mg/m³
Québec	VEMP (mg/m³)	2 mg/m³
Saskatchewan	OEL STEL (mg/m³)	4 mg/m³
Saskatchewan	OEL TWA (mg/m³)	2 mg/m³

Manganese (7439-96-5)		
Mexico	OEL TWA (mg/m³)	0.2 mg/m³ 1 mg/m³ (fume)
Mexico	OEL STEL (mg/m³)	3 mg/m³ (fume)
USA ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³ (respirable fraction) 0.1 mg/m³ (inhalable fraction)
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	5 mg/m³ (fume)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³ (fume)
USA NIOSH	NIOSH REL (STEL) (mg/m³)	3 mg/m³
USA IDLH	US IDLH (mg/m³)	500 mg/m³
Alberta	OEL TWA (mg/m³)	0.2 mg/m³
British Columbia	OEL TWA (mg/m³)	0.2 mg/m³
Manitoba	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction)
New Brunswick	OEL TWA (mg/m³)	0.2 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction)
Nova Scotia	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction)
Nunavut	OEL Ceiling (mg/m³)	5 mg/m³
Nunavut	OEL STEL (mg/m³)	3 mg/m³ (fume)
Nunavut	OEL TWA (mg/m³)	1 mg/m³ (fume)
Northwest Territories	OEL Ceiling (mg/m³)	5 mg/m³
Northwest Territories	OEL STEL (mg/m³)	3 mg/m³ (fume)
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³ (fume)
Ontario	OEL TWA (mg/m³)	0.2 mg/m³
Prince Edward Island	OEL TWA (mg/m³)	0.02 mg/m³ (respirable fraction)

Québec	VEMP (mg/m³)	0.2 mg/m³ (total dust and fume)
Saskatchewan	OEL STEL (mg/m³)	0.6 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.2 mg/m³
Yukon	OEL Ceiling (mg/m³)	5 mg/m³
Lead (7439-92-1)		
Mexico	OEL TWA (mg/m³)	0.15 mg/m³ (dust and fume)
USA ACGIH	ACGIH TWA (mg/m³)	0.05 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	50 µg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.050 mg/m³
USA IDLH	US IDLH (mg/m³)	100 mg/m³
Alberta	OEL TWA (mg/m³)	0.05 mg/m³
British Columbia	OEL TWA (mg/m³)	0.05 mg/m³
Manitoba	OEL TWA (mg/m³)	0.05 mg/m³
New Brunswick	OEL TWA (mg/m³)	0.05 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.05 mg/m³
Nova Scotia	OEL TWA (mg/m³)	0.05 mg/m³
Nunavut	OEL STEL (mg/m³)	0.45 mg/m³
Nunavut	OEL TWA (mg/m³)	0.15 mg/m³
Northwest Territories	OEL STEL (mg/m³)	0.45 mg/m³
Northwest Territories	OEL TWA (mg/m³)	0.15 mg/m³
Ontario	OEL TWA (mg/m³)	0.05 mg/m³ (designated substances regulation)
Prince Edward Island	OEL TWA (mg/m³)	0.05 mg/m³
Québec	VEMP (mg/m³)	0.05 mg/m³
Saskatchewan	OEL STEL (mg/m³)	0.15 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.05 mg/m³
Yukon	OEL STEL (mg/m³)	0.45 mg/m³ (dust and fume)
Yukon	OEL TWA (mg/m³)	0.15 mg/m³ (dust and fume)

Nickel (7440-02-0)		
Mexico	OEL TWA (mg/m³)	1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.015 mg/m³
USA IDLH	US IDLH (mg/m³)	10 mg/m³
Alberta	OEL TWA (mg/m³)	1.5 mg/m³
British Columbia	OEL TWA (mg/m³)	0.05 mg/m³
Manitoba	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
New Brunswick	OEL TWA (mg/m³)	1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Nova Scotia	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Nunavut	OEL STEL (mg/m³)	2 mg/m³
Nunavut	OEL TWA (mg/m³)	1 mg/m³
Northwest Territories	OEL STEL (mg/m³)	2 mg/m³
Northwest Territories	OEL TWA (mg/m³)	1 mg/m³
Ontario	OEL TWA (mg/m³)	1 mg/m³ (inhalable)
Prince Edward Island	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Québec	VEMP (mg/m³)	1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	3 mg/m³ (inhalable fraction)
Saskatchewan	OEL TWA (mg/m³)	1.5 mg/m³ (inhalable fraction)
Yukon	OEL STEL (mg/m³)	3 mg/m³
Yukon	OEL TWA (mg/m³)	1 mg/m³

Silver (7440-22-4)		
Mexico	OEL TWA (mg/m³)	0.1 mg/m³
USA ACGIH	ACGIH TWA (mg/m³)	0.1 mg/m³ (dust and fume)
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.01 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.01 mg/m³ (dust)
USA IDLH	US IDLH (mg/m³)	10 mg/m³ (dust)
Alberta	OEL TWA (mg/m³)	0.1 mg/m³
British Columbia	OEL STEL (mg/m³)	0.03 mg/m³
British Columbia	OEL TWA (mg/m³)	0.01 mg/m³
Manitoba	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
New Brunswick	OEL TWA (mg/m³)	0.1 mg/m³
Newfoundland & Labrador	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Nova Scotia	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Nunavut	OEL STEL (mg/m³)	0.3 mg/m³
Nunavut	OEL TWA (mg/m³)	0.1 mg/m³
Northwest Territories	OEL STEL (mg/m³)	0.3 mg/m³
Northwest Territories	OEL TWA (mg/m³)	0.1 mg/m³
Ontario	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Prince Edward Island	OEL TWA (mg/m³)	0.1 mg/m³ (dust and fume)
Québec	VEMP (mg/m³)	0.1 mg/m³
Saskatchewan	OEL STEL (mg/m³)	0.3 mg/m³
Saskatchewan	OEL TWA (mg/m³)	0.1 mg/m³
Yukon	OEL STEL (mg/m³)	0.03 mg/m³
Yukon	OEL TWA (mg/m³)	0.01 mg/m³

8.2. Exposure Controls

Appropriate Engineering Controls: Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices. Ensure all national/local regulations are observed.

Personal Protective Equipment: Protective clothing. Gloves. Safety glasses. Dust formation: dust mask. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Chemically resistant materials and fabrics. With molten material wear thermally protective clothing.

Hand Protection: Wear chemically resistant protective gloves. If material is hot, wear thermally resistant protective gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Wear suitable protective clothing. Wash contaminated clothing before reuse.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

General Hygiene Considerations: Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear disposable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling.

Section 9: Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical State	:	Solid
Appearance	:	Metallic
Odor	:	Odorless
Odor Threshold	:	Not available
pH	:	Not available
Evaporation Rate	:	Not available
Melting Point	:	440 - 1215 °F (226.7 - 657.2 °C)
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not applicable
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	2.5 - 2.9
Solubility	:	Insoluble in water
Partition Coefficient: N-octanol/water	:	Not available
Viscosity	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	:	Not expected to present an explosion hazard due to static discharge.

Section 10: Physical and Chemical Properties

10.1. Reactivity: Hazardous reactions will not occur under normal conditions.
10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).
10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
10.4. Conditions to Avoid: Avoid creating or spreading dust. Sparks, heat, open flame and other sources of ignition.
10.5. Incompatible Materials: When molten: water. Strong acids, strong bases, strong oxidizers. Alkalis. Metal oxides. Moisture. Corrosive substances in contact with metals may produce flammable hydrogen gas.

10.6. Hazardous Decomposition Products: Oxides of iron and carbon. Organic acid vapors. Oxides of lead. Chromium (VI) compounds.

Section 11: Toxicological Information

11.1. Information on Toxicological Effects - Product

Acute Toxicity: Not classified.
LD50 and LC50 Data: Not available
Skin Corrosion/Irritation: Not classified
Serious Eye Damage/Irritation: Not classified
Respiratory or Skin Sensitization: Not classified.
Germ Cell Mutagenicity: Not classified.
Teratogenicity: Not classified.
Carcinogenicity: Not classified.
Specific Target Organ Toxicity (Repeated Exposure): Not classified.
Reproductive Toxicity: Not classified.

Specific Target Organ Toxicity (Single Exposure): Not classified
Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.
Symptoms/Injuries After Skin Contact: May cause an allergic skin reaction. Dust from physical alteration of this product causes skin irritation. Causes severe skin burns. Contact with fumes or metal powder will irritate skin. Contact with hot, molten metal will cause thermal burns. Dust may cause irritation in skin folds or by contact in combination with tight clothing. Mechanical damage via flying particles and chipped slag is possible.

Symptoms/Injuries After Eye Contact: Dust may cause mechanical irritation to eyes, nose, throat, and lungs.
Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms: In massive form, no hazard exists. If physically altered to present slivers, ribbons, dusts or fumes from molten material: Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. Inhalation of Nickel compounds has been shown in studies to provide an increased incidence of cancer of the nasal cavity, lung and possibly larynx in nickel refinery workers. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic. Manganese : Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. Silicon : Can cause chronic bronchitis and narrowing of the airways. Lead: Exposure can result in lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; encephalopathy; kidney disease; hypertension. May cause genetic defects. May damage fertility. May damage the unborn child. Beryllium: Over time inhalation of dust and fumes from this product in certain individuals may cause Chronic Beryllium Disease. This causes allergic reactions in sensitized individuals in the lungs, possibly resulting in pulmonary fibrosis, and can even be fatal. Beryllium is a known carcinogen. Take appropriate precautions for workers exposure to Beryllium compounds, avoid breathing dust, and fumes from this product. Tin: Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure to tin dusts and fume may result in "stannosis", a mild form of pneumoconiosis.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Zinc Oxide (1314-13-2)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
Nickel (7440-02-0)	
LD50 Oral Rat	> 9000 mg/kg
Lead (7439-92-1)	
ATE US (oral)	500.00 mg/kg body weight
ATE US (dust, mist)	1.50 mg/l/4h
Tin (7440-31-5)	
LD50 Oral Rat	700 mg/kg
Iron Oxide (1309-37-1)	
LD50 Oral Rat	> 10000 mg/kg
Manganese (7439-96-5)	
LD50 Oral Rat	> 2000 mg/kg
Thallium (7440-28-0)	
ATE US (oral)	5.00 mg/kg body weight
ATE US (gases)	100.00 ppmV/4h
ATE US (vapors)	0.50 mg/l/4h
ATE US (dust, mist)	0.05 mg/l/4h
Cobalt (7440-48-4)	
LD50 Oral Rat	215.9 - 1140 mg/kg
LC50 Inhalation Rat	> 10 mg/l (Exposure time: 1 h)
ATE US (dust, mist)	0.01 mg/l/4h
Beryllium (7440-41-7)	
ATE US (dust, mist)	0.05 mg/l/4h
Cadmium (7440-43-9)	
LD50 Oral Rat	1140 mg/kg
LC50 Inhalation Rat	25 mg/m³ (Exposure time: 30 min)
ATE US (vapors)	25.00 mg/l/4h
ATE US (dust, mist)	0.05 mg/l/4h
Arsenic (7440-38-2)	
LD50 Oral Rat	15 mg/kg
ATE US (dust, mist)	0.50 mg/l/4h
Sulfur Dioxide (7446-09-5)	
LC50 Inhalation Rat	2500 ppm/1h
ATE US (gases)	1,250.00 ppmV/4h
Nickel (7440-02-0)	
IARC Group	2B
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
Lead (7439-92-1)	

IARC Group	2A
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
Iron Oxide (1309-37-1)	
IARC Group	3
Arsenic (7440-38-2)	
LOAEL (oral,rat)	5 mg/kg body weight
LOAEL (dermal,rat/rabbit)	300 mg/kg body weight

Section 12: Ecological Information

12.1. Toxicity No additional information available

Copper (7440-50-8)	
LC50 Fish 1	<= 0.0068 (0.0068 - 0.0156) mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	0.0426 (0.0426 - 0.0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC 50 Fish 2	0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Other Aquatic Organisms 2	0.031 (0.031 - 0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
Zinc oxide (1314-13-2)	
LC50 Fish 1	80 µg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0.122 mg/l
NOEC chronic fish	0.026 mg/l (Species: Jordanella floridae)
Nickel (7440-02-0)	
LC50 Fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	13 (13 - 200) µg/l (Exposure time: 48h - Species: Ceriodaphnia dubia [static])
LC 50 Fish 2	1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 2	0.174 (0.174 - 0.311) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
Lead (7439-92-1)	
LC50 Fish 1	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 1	600 µg/l (Exposure time: 48 h - Species: water flea)
LC 50 Fish 2	1.17 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
Manganese (7439-96-5)	
NOEC chronic fish	3.6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss)

Cobalt (7440-48-4)	
LC50 Fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
Cadmium (7440-43-9)	
LC50 Fish 1	0.003 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 1	0.0244 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	0.006 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

12.2. Persistence and Degradability

Copper/Copper Alloys	
Persistence and Degradability	Not established.
Copper (7440-50-8)	
Persistence and Degradability	Not readily biodegradable.

12.3. Bioaccumulative Potential

Copper/Copper Alloys	
Bioaccumulative Potential	Not established.
Cobalt (7440-48-4)	
BCF Fish 1	(no bioaccumulation)
Sulfur dioxide (7446-09-5)	
BCF Fish 1	(no bioaccumulation expected)

12.4. Mobility in Soil

Lead and lead compounds will partially settle out due to their fairly low solubility and partially dissolve. In soil, lead and lead compounds are generally not very mobile or bio-available, as they can be strongly absorbed on soil particles, increasingly over time. It also forms complexes with organic matter and clay minerals that limit its mobility. When released into the soil, this material is not expected to leach into groundwater.

Environmental Notice

Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

Bio-accumulation

While lead metal and its compounds are generally insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of lead in bioavailable forms. Lead compounds are not particularly mobile in the aquatic environments, but can be toxic for organisms, especially fish, at low concentrations. Water hardness, pH and dissolved organic carbon content are factors which regulate the degree of toxicity. In soil, lead compounds are generally not very bioavailable.

12.5. Other Adverse Effects

Other Information: Avoid release to the environment

Section 13: Ecological Information

Waste Treatment Methods

Disposal of wastes: Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging: Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

14.1. In Accordance with DOT Not regulated for transport
14.2. In Accordance with IMDG Not regulated for transport
14.3. In Accordance with IATA Not regulated for transport
14.4. In Accordance with TDG Not regulated for transport

Note: This product is not regulated for domestic transport by land, air or rail.

Under 49 CFR 171.8, individual packages that contain lead metal (<100 micrometers) below the reportable quantity (RQ) are not regulated.

Under 49 CFR 171.4, except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicles, rail cars and aircrafts.

DOT

Proper shipping name	Not applicable
Hazard Class Packing Group	Not applicable

Reportable Quantity (RQ)	Not applicable
Marine pollutant	Soluble lead compounds are listed as a marine pollutant according to DOT.
Emergency Response Guide	Not applicable

Section 15: Regulatory Information

International Inventories:	
TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
Legend:	
TSCA	United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL	Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS	Japan Existing and New Chemical Substances
IECSC	China Inventory of Existing Chemical Substances
KECL	Korean Existing and Evaluated Chemical Substances
PICCS	Philippines Inventory of Chemicals and Chemical Substances
AICS	Australia Inventory of Chemicals and Substances
US Federal Regulations **SARA 313**	Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

US State Regulations California Proposition 65

This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.

Chemical Name	California Proposition 65
Copper (7440-50-8)	Not listed

US State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Copper (7440-50-8)	X	-	X	-	-

US EPA Label Information

EPA Pesticide Registration Number: Not available

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established

Section 16: Other Information

Issue Date	**December 7, 2015**
Revision Date	**N / A**
Revision Note	**N / A**

GHS Full Text Phrases:

Acute Tox. 1 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 1
Acute Tox. 2 (Inhalation)	Acute toxicity (inhalation) Category 2
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral) Category 2
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 1A	Carcinogenicity Category 1A
Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
Compressed gas	Gases under pressure Compressed gas
Eye Dam. 1	Serious eye damage/eye irritation Category 1

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Sol. 1	Flammable solids Category 1
Muta. 1B	Germ cell mutagenicity Category 1B
Muta. 2	Germ cell mutagenicity Category 2
Repr. 1A	Reproductive toxicity Category 1A
Repr. 2	Reproductive toxicity Category 2
Resp. Sens. 1B	Respiratory sensitisation Category 1B
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Sens. 1	Skin sensitization Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
Water-react. 2	Substances and mixtures which in contact with water emit flammable gases Category 2
H228	Flammable solid
H300	Fatal if swallowed
H302	Harmful if swallowed
H280	Contains gas under pressure; may explode if heated
H261	In contact with water releases flammable gases
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H360	May damage fertility or the unborn child
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

D I S C L A I M E R

This information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and is not to be considered a warranty or quality Specification.

The information above is also believed to be accurate and represents the best information available to Materials Science International, Inc. However, MSI makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.