B2414463

Copper Base Alloys

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

Date of issue: 01/29/2016 Revision date: 10/19/2018

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Copper Base Alloys

Product code : AH0904L (US)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Ingots, Bar, Billet, Plate, Strip, Block, Electrode & Remelt Pig

1.3. Details of the supplier of the safety data sheet

Electralloy
175 Main Street
Oil City, PA 16301
T 814-678-4100

1.4. Emergency telephone number

Emergency number : 814-678-4200

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This product, as sold, has little or no immediate health or fire hazards. Under OSHA 29 CFR 1910.1200 Hazardous Communication Standard, steel products are considered mixtures since in solution, the two or more substances do not react. If product is welded, burned, sawed, brazed, ground, etc. potentially hazardous airborne particulate matter and fumes may be generated. Such activities should be performed in well-ventilated areas with appropriate PPE, as per PPE assessments for tasks involved. The classification given below pertains to the product during processing:

GHS-US classification

Acute Tox. 4 (Oral)

Resp. Sens. 1

Skin Sens. 1

Carc. 2

STOT RE 1

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : Harmful if swallowed
May cause an allergic skin reaction
May cause an allergy or asthma symptoms or breathing difficulties if inhaled
Suspected of causing cancer
Causes damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) : Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing must not be allowed out of the workplace
Wear protective gloves/protective clothing/eye protection/face protection.
Wear respiratory protection.
If exposed or concerned: Get medical advice/attention.
If swallowed: Call a poison center or doctor if you feel unwell
Rinse mouth.
If on skin: Wash with plenty of water
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing
If experiencing respiratory symptoms: Call a poison center or doctor
Store locked up.

Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available.

2.4. Unknown acute toxicity (GHS-US)

Not applicable.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable.

3.2. Mixture

Name	Product identifier	%
Copper	(CAS No) 7440-50-8	50 - 99.5
Iron (iron oxide)	(CAS No) 7439-89-6 (1309-37-1)	0 - 50
Nickel	(CAS No) 7440-02-0	0 - 40
Cobalt	(CAS No) 7440-48-4	0 - 20
Aluminum	(CAS No) 7429-90-5	0 - 15
Molybdenum	(CAS No) 7439-98-7	0 - 10
Chromium[1]	(CAS No) 7440-47-3	0 - 10
Sulfur	(CAS No) 7704-34-9	0 - 5
Silicon	(CAS No) 7440-21-3	0 - 5
Titanium	(CAS No) 7440-32-6	0 - 5
Manganese	(CAS No) 7439-96-5	0 - 2.5
Tungsten	(CAS No) 7440-33-7	0 - 2
Vanadium	(CAS No) 7440-62-2	0 - 1
Carbon	(CAS No) 7440-44-0	0 - 1
Phosphorus	(CAS No) 7723-14-0	0-0.5

The above listing is a summary of elements used in alloying copper. Various grades will contain different combinations of these elements. Products of combustion may include, and are not limited to: oxides of various alloying elements and toxic metallic fumes.

The metal may contain small amounts of other elements in addition to those above. These elements, generally originate in small quantities in the raw material used. These elements may include, but are not limited to the following: Boron, Calcium, Tin and Zirconium.

[1] Welding, torch cutting, brazing, or grinding of chromium metal present in this product may generate airborne concentrations of hexavalent chromium.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or a doctor.

First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists. Burns caused by molten material must be treated clinically. Do not use solvents or thinners.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.

First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Rinse mouth. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled. Dust and fumes may cause respiratory tract irritation. 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. Welding, torch cutting, brazing, or grinding of chromium metal present in this product may generate airborne concentrations of hexavalent chromium.

Symptoms/injuries after skin contact : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin. May cause sensitization by skin contact. Risk of thermal burns on contact with molten product.

Symptoms/injuries after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/injuries after ingestion : Harmful if swallowed. May cause stomach distress, nausea or vomiting.

Symptoms after chronic exposure : Excessive and repeated overexposure of nickel and chromium can cause various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract. Both chromium and nickel have been associated with upper respiratory cancer. Excessive and repeated overexposure of iron fumes can cause siderosis. Excessive and prolonged inhalation of manganese fumes can cause bronchitis, pneumonitis, and lack of coordination.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Treat for surrounding material.

Unsuitable extinguishing media : Do not use water on molten metal as explosion hazard could result.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Products of combustion may include, and are not limited to: oxides of various alloying elements and toxic metallic fumes.

Explosion hazard : May be flammable and explosive when in dust cloud, depending on the concentration of the powder in a given area and the particle size of the powder.

5.3. Advice for firefighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2. Methods and material for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Minimize dust generation. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Scoop up material and place in a disposal container. Provide ventilation.

6.3. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust, mist, gas, fume, vapors, spray. Do not swallow. Minimize generation of dust. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Handle and open container with care. When using do not eat, drink or smoke. Use only in well-ventilated areas.

Hygiene measures : Wash hands before eating, drinking, or smoking. Launder contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed, dry and in a well-ventilated place.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Iron (7439-89-6)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	Not applicable	Not applicable
OSHA	Not applicable	Not applicable
NIOSH	Not applicable	Not applicable

Chromium (7440-47-3)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³
OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
NIOSH	NIOSH REL (TWA) (mg/m³) US IDLH (mg/m³)	0.5 mg/m³ 250 mg/m³

Nickel (7440-02-0)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	1.5 mg/m³ (inhalable particulate matter)
OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
NIOSH	NIOSH REL (TWA) (mg/m³) US IDLH (mg/m³)	0.015 mg/m³ 10 mg/m³

Copper (7440-50-8)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³ (fume)
OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³ (fume) 1 mg/m³ (dust and mist)
NIOSH	NIOSH REL (TWA) (mg/m³) US IDLH (mg/m³)	1 mg/m³ (dust and mist) 0.1 mg/m³ (fume) 100 mg/m³ (dust, fume and mist)

Manganese (7439-96-5)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)
OSHA	OSHA PEL (Ceiling) (mg/m³)	5 mg/m³ (fume)
NIOSH	NIOSH REL (STEL) (mg/m³) NIOSH REL (TWA) (mg/m³) US IDLH (mg/m³)	3 mg/m³ 1 mg/m³ (fume) 500 mg/m³

Molybdenum (7439-98-7)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (inhalable particulate matter) 3 mg/m³ (respirable particulate matter)
OSHA	Not applicable	Not applicable
NIOSH	US IDLH (mg/m³)	5000 mg/m³

Aluminum (7429-90-5)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (respirable particulate matter)
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)

Titanium (7440-32-6)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	Not applicable	Not applicable
OSHA	Not applicable	Not applicable

Titanium (7440-32-6)		
NIOSH	Not applicable	Not applicable

Silicon (7440-21-3)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	Not applicable	Not applicable
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)

Vanadium (7440-62-2)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	Not applicable	Not applicable
OSHA	OSHA PEL (Ceiling) (mg/m³)	0.5 mg/m³ (respirable dust) 0.1 mg/m³ (fume)
NIOSH	NIOSH REL (STEL) (mg/m³) NIOSH REL (TWA) (mg/m³)	3 mg/m³ 1 mg/m³

Cobalt (7440-48-4)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	0.02 mg/m³
OSHA	OSHA PEL (TWA) (mg/m³)	0.1 mg/m³ (dust and fume)
NIOSH	NIOSH REL (TWA) (mg/m³) US IDLH (mg/m³)	0.05 mg/m³ (dust and fume) 20 mg/m³ (dust and fume)

Carbon (7440-44-0)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	Not applicable	Not applicable
OSHA	Not applicable	Not applicable
NIOSH	Not applicable	Not applicable

Tungsten (7440-33-7)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	3 mg/m³ (respirable particulate matter)
OSHA	Not applicable	Not applicable
NIOSH	NIOSH REL (STEL) (mg/m³) NIOSH REL (TWA) (mg/m³)	10 mg/m³ 5 mg/m³

Sulfur (7704-34-9)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	Not applicable	Not applicable
OSHA	Not applicable	Not applicable
NIOSH	Not applicable	Not applicable

Phosphorus (7723-14-0) - Red		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	Not applicable	Not applicable
OSHA	Not applicable	Not applicable
NIOSH	Not applicable	Not applicable

Iron Oxide (1309-37-1)		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	5 mg/m³ (respirable particulate matter)
OSHA	OSHA PEL (TWA) (mg/m³)	10 mg/m³ (fume) 15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
NIOSH	NIOSH REL (TWA) (mg/m³) US IDLH (mg/m³)	5 mg/m³ (dust and fume, as Fe) 2500 mg/m³ (dust and fume, as Fe)

Particulate not otherwise regulated		
ORGANIZATION	**TYPE OF LIMIT**	**THRESHOLD**
ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (inhalable fraction) 3 mg/m³ (respirable fraction)
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
NIOSH	Not applicable	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Hand protection : Wear chemically resistant protective gloves.

Eye protection : Safety glasses or goggles are recommended when using product.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : When dust and fumes are present from processing, a NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).

Environmental exposure controls : Maintain levels below Community environmental protection thresholds.

Other information : Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : No data available

Colour : Metallic

Odour : Odorless

Odour threshold : No data available

pH : No data available

Melting point : 1093-1538 °C (2000-2800 °F)

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Relative evaporation rate (butylacetate=1) : No data available

Flammability (solid, gas) : Not flammable

Explosive limits : No data available

Explosive properties : No data available

Oxidising properties : No data available

Vapour pressure : No data available

Relative density : 7.5-8.5

Relative vapour density at 20 °C : No data available

Solubility : Insoluble

Partition coefficient: n-octanol/water : No data available

Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information
No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reaction known under conditions of normal use.

10.2. Chemical stability
Stable under normal storage conditions.

10.3. Possibility of hazardous reactions
No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid
Heat. Incompatible materials.

10.5. Incompatible materials
Strong acids. Oxidizers.

10.6. Hazardous decomposition products
May include, and are not limited to: oxides of various alloying elements and toxic metallic fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Oral: Harmful if swallowed.

Copper Base Alloys	
ATE US (oral)	>300 - ≤2000 mg/kg body weight

Iron (7439-89-6)	
LD50 oral rat	30 g/kg
ATE US (oral)	30000 mg/kg body weight

Nickel (7440-02-0)	
LD50 oral rat	> 9000 mg/kg
LC50 inhalation rat	> 10.2 mg/l (Exposure time: 1 h)

Copper (7440-50-8)	
ATE US (oral)	500 mg/kg body weight

Manganese (7439-96-5)	
LD50 oral rat	9 g/kg
ATE US (oral)	9000 mg/kg body weight

Silicon (7440-21-3)	
LD50 oral rat	3160 mg/kg
ATE US (oral)	3160 mg/kg body weight

Vanadium (7440-62-2)	
LD50 oral rat	> 2000 mg/kg

Cobalt (7440-48-4)	
LC50 inhalation rat	> 10 mg/l (Exposure time: 1 h)

Carbon (7440-44-0)	
LD50 oral rat	> 10000 mg/kg

Sulfur (7704-34-9)	
LD50 oral rat	> 3000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat	> 9.23 mg/l/4h

Phosphorus (7723-14-0)	
LD50 oral rat	3030 µg/kg
LD50 dermal rat	100 mg/kg
LC50 inhalation rat	4.3 mg/l (Exposure time: 1 h)
ATE US (oral)	3.03 mg/kg body weight
ATE US (dermal)	100 mg/kg body weight
ATE US (vapors)	4.3 mg/l/4h
ATE US (dust, mist)	4.3 mg/l/4h

Iron oxide (1309-37-1)	
LD50 oral rat	> 10000 mg/kg

Skin corrosion/irritation : Based on available data, the classification criteria are not met.

Serious eye damage/irritation : Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ cell mutagenicity : Based on available data, the classification criteria are not met.

Carcinogenicity : Suspected of causing cancer.

Chromium (7440-47-3)	
IARC group	3 - Not classifiable

Nickel (7440-02-0)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes

Cobalt (7440-48-4)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes

Iron oxide (1309-37-1)	
IARC group	3 - Not classifiable

Reproductive toxicity : Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure) : Based on available data, the classification criteria are not met.

Specific target organ toxicity (repeated exposure) : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Based on available data, the classification criteria are not met.

Symptoms/injuries after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled. Dust and fumes may cause respiratory tract irritation. 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. Welding, torch cutting, brazing, or grinding of chromium metal present in this product may generate airborne concentrations of hexavalent chromium.

Symptoms/injuries after skin contact : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin. May cause sensitization by skin contact. Risk of thermal burns on contact with molten product.

Symptoms/injuries after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/injuries after ingestion : Harmful if swallowed. May cause stomach distress, nausea or vomiting.

Symptoms after chronic exposure : Excessive and repeated overexposure of nickel and chromium can cause various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract. Both chromium and nickel have been associated with upper respiratory cancer. Excessive and repeated overexposure of iron fumes can cause siderosis. Excessive and prolonged inhalation of manganese fumes can cause bronchitis, pneumonitis, and lack of coordination.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.

Nickel (7440-02-0)	
LC50 fish 1	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 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])

Copper (7440-50-8)	
LC50 fish 1	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])
LC50 fish 2	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

Cobalt (7440-48-4)	
LC50 fish 1	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])

Sulfur (7704-34-9)	
LC50 fish 1	866 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
LC50 fish 2	< 14 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

Phosphorus (7723-14-0)	
LC50 fish 1	0.0017 - 0.0035 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	0.001 - 0.004 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 2	0.025 - 0.037 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

12.2. Persistence and degradability

Copper Base Alloys	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Copper Base Alloys	
Bioaccumulative potential	Not established.

Cobalt (7440-48-4)	
BCF fish 1	(no bioaccumulation)

Phosphorus (7723-14-0)	
BCF fish 1	< 200

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Other information : No other effects known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT.

As shipped, not regulated for transport.

Additional information

Other information : No supplementary information available.

Special transport precautions : Do not handle until all safety precautions have been read and understood.

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

Copper (7440-50-8)	
Regulations	CWA, CERCLA, SDWA, SARA 313
Nickel (7440-02-0)	
Regulations	CAA, CWA, SARA 313, CERCLA, SDWA, RCRA
Cobalt (7440-48-4)	
Regulations	SARA 313
Aluminum (7429-90-5)	
Regulations	SDWA, SARA 313
Chromium (7440-47-3)	
Regulations	CAA, CWA, SARA 313, SDWA, CERCLA, RCRA
Manganese (7439-96-5)	
Regulations	SARA 313, CAA, CERCLA, SDWA
Vanadium (7440-62-2)	
Regulations	SARA 313, CERCLA, SDWA, RCRA
Phosphorus (7723-14-0)	
Regulations	CAA, CWA, SARA 313, CERCLA, SDWA
Regulations Key - SARA Potential Hazard Categories: Immediate Acute Health Hazard; Delayed Chronic Health Hazard	
CAA	Clean Air Act (42 USC Sec. 7412; 40 CFR Part 61 [As of: 8/18/06])
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (42 USC secs. 9601 (14), 9603(a); 40 CFR Sec. 302.4; Table 302.4 and App. A)
CWA	Clean Water Act (33 USC Secs. 1311; 1314(b), (c), (e), (g); 136(b), (c); 137(b), (c) [as of 8/2/06])
RCRA	Resource Conservation Recovery Act (42 USC Sec. 6921; 40 CFR Part 261 App VIII)
SARA	Superfund Amendments and Reauthorization Title III Section 302 Extremely Hazardous Substances (42 USC secs. 11023, 13106; 40 CFR Sec. 372.65) and Section 313 Toxic Chemicals (42 USC secs. 11023, 13106; 40 CFR sec. 372.65 [as of 6/30/05])
SDWA	Safe Drinking Water Act (42 U.S.C. s/s 300f et seq. [1974])
TSCA	Toxic Substance Control Act (15 U.S.C. s/s 2601 et seq. [1976])

15.2. US State of California Regulations

⚠ **WARNING:** This product can expose you to Nickel, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

Date of issue : 01/29/2016

Revision date : 10/19/2018

Version : L

Other information : None

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