SAFETY DATA SHEET

SECTION 1 ◆ IDENTIFICATION

Webco Industries, Inc. 9101 W 21st Street Sand Springs, OK. 74063	**FOR EMERGENCY SOURCE INFORMATION CONTACT:** ✦ Phone: (918) 241-1000

GHS PRODUCT IDENTIFIERS: Stainless Steel Tubing	**CHEMICAL FAMILY:** Metals	**PRODUCT USES:** Used as a base product in many stainless steel tubing applications

SECTION 2 ✷ HAZARDS IDENTIFICATION

Note: Stainless steel products as sold by Webco Industries are not hazardous per OSHA GHS 29 CFR 1910.1200. However, individual customer processes (particularly involving high temperature), such as welding, sawing, brazing, grinding, abrasive blasting, and machining may result in the formation of fumes, dust (combustible or otherwise), and/or particulate that may present the following hazards.

GHS CLASSIFICATIONS

Carcinogenicity - Category 1B	Reproductive Toxicity – 2	STOT Repeated Exposure - 1
Eye Irritation – 2B	Acute Toxicity – Oral – 4	Skin Sensitization – 1

GHS LABEL ELEMENTS

STAINLESS STEEL TUBING

GHS PICTOGRAMS		SIGNAL WORD
		**DANGER**

HAZARD STATEMENTS

Dust/fumes Suspected of causing cancer via inhalation.	Dust/fumes suspected of damaging fertility or the unborn child.	Dust/fumes Causes damage to lungs and central nervous system through prolonged or repeated inhalation exposure.
Dust/particulates may cause eye irritation.	Inhalation of dust/fumes may cause respiratory irritation.	
Harmful if swallowed.	Dust/fumes may cause an allergic skin reaction.	

PRECAUTIONARY STATEMENTS

Prevention

Do not eat, drink or smoke when using this product.	Protection / face protection.	Avoid breathing dusts/fume.
Do not handle until all safety precautions have been read and understood.	Wear protective gloves / protective clothing / eye	

Response

If on skin: Wash with plenty of water. If irritation or rash occurs: Get medical attention. Take off and wash contaminated clothing before reuse.	If swallowed: Call a poison center or physician if you feel unwell. Rinse mouth.
If in eyes: Rinse cautiously with water for several minutes.	Remove contact lenses, if present and easy to do. Continue Rinsing. If eye irritation persists: Get medical attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.	If exposed, concerned or feel unwell: Get medical advice/attention.

Storage/Disposal

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

SUPPLIER INFORMATION

Webco Industries, Inc.	P.O. Box 100	Sand Springs, OK. 74063

SECTION 3 ▼ COMPOSITION/INFORMATION OF INGREDIENTS

INGREDIENT	CAS NUMBER	PERCENTAGE (%)
Iron	1309-37-1	Balance
Nickel	7440-02-0	0-6.5 (Can be as high as 80% in nickel-based alloys)
Cobalt** (Nickel Alloys)	7440-48-4	0-21 (Nickel Alloys)
Chromium	7440-47-3	10-30
Molybdenum	7439-98-7	0-7.0
Copper	7440-50-8	0-4.0
Aluminum	7429-90-5	0-4.0
Manganese	7439-96-5	0-10
Tungsten	7440-33-7	0-2.5
Titanium	7440-32-6	0-2.4
Vanadium	7440-62-2	0-1.1
Columbium	7440-03-1	0-1.0
Tantalum	7440-25-7	0-1.0
Silicon	7440-21-3	0.00-0.50

- All concentrations are in percent by weight. Percentages are expressed as typical ranges or maximum concentrations of trace elements for the purpose of communicating the potential hazards of the finished product.
- Commercial steel products contain small amounts of various elements in addition to those specified. These small quantities frequently referred to as "trace" or "residual" elements, generally originate in the raw materials used and/or are alloying metals. Individual trace elements vary in concentration by weight, and may additionally include: boron, calcium, columbium (niobium), molybdenum, sulfur, titanium, and vanadium.
- Product surfaces are treated with chemicals which are inherent to the manufacturing process. For the Webco-04 product the following products are used in the production process: Syntilo™ 9918. Refer to the manufacturer's SDS for hazards associated with these products.
- Steel products as provided contain chromium metal in the zero-valence state. As such, chromium metal does not present any unusual health hazard. Hence, the most applicable exposure limits relative to chromium in these products are those established for the metal, itself. However, welding, torch cutting, brazing or perhaps grinding of the chromium metal in steel products may generate airborne concentrations of hexavalent chromium, (CrVI), a confirmed human carcinogen. Therefore, should the user perform any of these tasks, the hexavalent chromium exposure limits would apply.

SECTION 4 ✚ FIRST AID MEASURES

EYES: For contact with dusts, fumes or particulate, flush eyes with water for 15 minutes. Eye injuries from solid particles should be treated by a physician immediately.

SKIN: Not anticipated to pose a significant skin hazard. For skin contact with dusts or powders, wash immediately with soap and water. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

INGESTION: This product is not considered to be an ingestion hazard, however if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. IF SWALLOWED: Call a poison center or Doctor/physician if you feel unwell. Rinse mouth.

INHALATION: Remove from excessive exposure levels. If large amounts of dusts, fumes, or particulate are generated, move person to fresh air. If symptoms develop, seek medical attention.

NOTE TO PHYSICIAN: Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, and remarkable leukocytosis. Treatment is symptomatic, and condition is self-limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

SECTION 5 ⌘ FIRE-FIGHTING MEASURES

SEE SECTION 9 FOR FLAMMABILITY PROPERTIES

NONFLAMMABLE Steel products do not present fire or explosion hazards under normal conditions.

SUITABLE EXTINGUISHING MEDIA: For mineral oil coating: carbon dioxide , foam, dry chemical
For molten metal: use dry powder or sand. For steel dust use dry sand, water, foam, argon or nitrogen

HAZARDOUS REACTIONS/DECOMPOSITION: Steel products do not present fire or explosion hazards under normal conditions. Any non-oxidized fine metal particles/dust generated by grinding, sawing, abrasive blasting, or individual customer processes may produce materials that the customer should test for combustibility and other hazards in accordance with applicable regulations. High concentrations of combustible metallic fines in the air may present an explosion hazard. Temperatures above the melting point may liberate fumes of chromium (hexavalent chromium), iron and nickel, etc.

SPECIAL PROTECTIVE ACTIONS FOR FIREFIGHTERS: Steel products in the solid state present no fire or explosion hazards. Do not use water on molten metal. Do not use carbon dioxide.

SECTION 6 ❖ ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS	Emergency response is unlikely unless in the form of combustible dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this SDS (see Section 8). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains, swearers, or waterways.
ENVIRONMENTAL PRECAUTIONS	Some grades of steel may contain reportable quantities of alloying elements. See Section 15 for additional information
METHODS FOR CLEANING UP	Emergency response is unlikely unless in the form of combustible dust.
OTHER INFORMATION	Some customer processes may generate combustible dust that may require specific precautions when cleaning spills or releases of dust.

SECTION 7 ✂ HANDLING AND STORAGE

Prior to working with this product workers should be trained on its proper handling, use and storage

PRECAUTIONS FOR SAFETY HANDLING	✦ None given
STORAGE PROCEDURES	✦ Webco Industries, Inc. Disclaims any responsibility for harm to persons or property resulting from conditions arising from storage or handling of this material or article by individuals beyond the control of Webco Industries, Inc., or resulting from use of the material or article in a manner inconsistent with its normal commercial use.
INCOMPATIBILITIES	✦ None given

SECTION 8 ⌗ EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH TLV (2022)	OSHA PEL	NIOSH IDLH
Iron (Oxide fume)	TWA: 5 mg/M^3	TWA: 10 mg/M^3	2,500 mg/M^3
Nickel	TWA: 1.5 mg/M^3	TWA: 1 mg/M^3	10 mg/M^3
Cobalt	TWA: 0.02 mg/M^3	0.1 mg/M^3	20 mg/M^3
Chromium	TWA: 0.5 mg/M^3	TWA: 1 mg/M^3	250 mg/M^3
Molybdenum	TWA: 10 mg/M^3	TWA: 15 mg/M^3	5,000 mg/M^3
Copper (fume)	TWA: 0.2 mg/M^3	TWA: 0.1 mg/M^3	100 mg/M^3
Aluminum	TWA: 1 mg/M^3	TWA: 5 mg/M^3	---------
Manganese	TWA: 0.1 mg/M^3	TWA: 5 mg/M^3 (Ceiling limit)	500 mg/M^3
Tungsten	TWA: 3 mg/M^3	TWA: 5 mg/M^3	---------
Titanium (dioxide)	TWA: 2.5 mg/M^3	TWA: 15 mg/M^3	5,000 mg/M^3

Chemical Name	ACGIH TLV (2022)	OSHA PEL	NIOSH IDLH
Vanadium (Pentoxide fume)	TWA: 0.05 mg/M^3	TWA: 0.1 mg/M^3 (Ceiling limit)	35 mg/M^3
Columbium	---------	---------	---------
Tantalum	---------	TWA: 5 mg/M^3	2,500 mg/M^3
Silicon	TWA: 3 mg/M^3 (respirable fraction)	TWA: 5 mg/M^3 (respirable fraction)	None Determined

ENGINEERING CONTROLS: Use adequate ventilation to keep dust/fume concentrations of this product below occupational exposure limits particularly in confined areas.

PERSONAL PROTECTIVE EQUIPMENT

- **EYES:** Safety glasses or goggles as needed for welding, burning, grinding or machine operations (ANSI Z87.1 approved).
- **SKIN/BODY:** Chemical protective clothing is recommended based on a thorough PPE hazard assessment. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for specific information.
- **HAND/CLOTHING PROTECTION:** Protective Gloves: Should be worn as required for welding, burning or handling operations. Clothing: Flame/heat protective garments required for safe burning, welding, or grinding.
- **RESPIRATORY PROTECTION:** A NIOSH approved air purifying respirator (APR) with properly selected cartridges may be permissible under certain circumstances where airborne concentrations may exceed exposure limits. Protection provided by APRs is limited, calculate the maximum use concentration for the exposure situation. Use a positive pressure atmosphere supplied (Grade D air) respirator if there is any potential for exposure levels are not known or any other circumstances where APRs may not provide adequate protection.

SECTION 9 ⚡ PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (760 MM HG)**:** Not applicable	**PERCENT VOLATILE BY VOLUME:** Not applicable	
SPECIFIC GRAVITY (H_2O = 1): Not applicable	**VISCOSITY UNITS, TEMP:** Not applicable	
EVAPORATION RATE (BuAc = 1): Not applicable	**VAPOR DENSITY (AIR =1):** Not applicable	
VAPOR PRESSURE AT 25 °C**:** Not applicable	**MELTING POINT:** 2500 – 2800 °F / 1430-1540 °C	
APPEARANCE AND ODOR: Gray to silver / no odor.	**AUTOIGNITION TEMPERATURE:** Not applicable	
FLASH POINT: (Method Used) Not applicable	**FLAMMABLE LIMITS:**	Not applicable

SECTION 10 ⌑ STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal temperatures and pressures

HAZARDOUS REACTION POTENTIAL: Will not occur

CONDITIONS TO AVOID: Stable under normal conditions of use, storage & transport. Steel at temperatures above the melting point may liberate fumes containing oxides of iron, chromium (hexavalent chromium) and alloying elements. Avoid generation of airborne fume.

INCOMPATIBLE PRODUCTS AND MATERIALS TO AVOID: Not Applicable

HAZARDOUS DECOMPOSITION PRODUCTS: Combusted mineral oil may contain polynuclear aromatic hydrocarbons.

HAZARDOUS POLYMERIZATION: Not Applicable

SECTION 11 ☣ TOXICOLOGICAL INFORMATION

METAL FUMES

When this product is welded or involved in a high temperature operation, fumes are generated. Breathing fumes or dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. The signs and symptoms are generally flu-like. They include fever, chills, nausea, headache, fatigue, muscle aches, joint pains, lack of appetite, shortness of breath, pneumonia, chest pain, change in blood pressure, dizziness, and coughing. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron, and arsenic. The most common agents involved are zinc and copper.

IRON

The primary component of this product is iron. Long-term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis. Symptoms may include chronic bronchitis, emphysema, and shortness of breath upon exertion. Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area. Ingestion overexposures to iron may affect the gastrointestinal, nervous, and hematopoietic system and the liver.

Toxicity

Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{lo\ (oral)}$	Dog	30 mg/kg	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (5 minutes)	No Data

Specific organ toxicity, single exposure: No data available	Specific organ toxicity, repeated exposure: No data available

CARCINOGENICITY

IARC/NTP	Not Listed

California (Prop 65): Not Listed	**NIOSH:** Not Listed	**ACGIH:** Not classifiable as a human carcinogen	**OSHA:** Not Listed

MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS

Respiratory or Skin sensitization: No data available	Germ cell mutagenicity: Not expected to cause effects
Reproductive toxicity: Not expected to cause effects	Teratogenicity: No data available
Skin Corrosion/irritation: Causes skin irritation and repeated exposure caused dryness and cracking	Serious eye damage, irritation: may cause serious eye irritation
Synergistic effects: No data available	Aspiration hazard: May be fatal if aspirated and enters airway

RTECS #: NO7400000

NICKEL

The health effects of nickel exposures include contact dermatitis in sensitized individual, eye irritation, asthma, pulmonary fibrosis, and edema.

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(Intra)}$	Rat	250 mg/kg	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data

Specific organ toxicity, single exposure: No data available	Specific organ toxicity, repeated exposure: No data available

CARCINOGENICITY

IARC	2B: Possibly carcinogenic to humans
NTP	Listed

California (Prop 65): Listed as carcinogen	**NIOSH:** Listed	**ACGIH:** A5: Not Suspected as a Human Carcinogen	**OSHA:** Not Listed

MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS

Respiratory or Skin sensitization: No data available	Germ cell mutagenicity: test performed on rats showed negative results
Reproductive toxicity: No data available	Teratogenicity: No data available
Skin Corrosion/irritation: No data available	Serious eye damage, irritation -rabbit: mild eye irritation
Synergistic effects: No data available	Aspiration hazard: No data available

RTECS #: QR5950000

COBALT								
Cobalt has caused lung damage in animal studies. It also has caused pulmonary sensitization. Allergic dermatitis has also been caused by cobalt. There is one study indicating cobalt may be carcinogenic, but this has not been confirmed by other human studies.								
Toxicity								
Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(Intra)}$	Rat	6,171 mg/kg	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data
Specific organ toxicity, single exposure: No data available				Specific organ toxicity, repeated exposure: No data available				
CARCINOGENICITY								
IARC	2A: Probably carcinogenic to humans							
NTP	Listed							
California (Prop 65): Listed		**NIOSH:** Not Listed		**ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans		**OSHA:** Not Listed		
MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS								
Respiratory or Skin sensitization: No data available				Germ cell mutagenicity: No data available				
Reproductive toxicity: No data available				Teratogenicity: No data available				
Skin Corrosion/irritation: No data available				Serious eye damage, irritation: No data available				
Synergistic effects: No data available				Aspiration hazard: No data available				
RTECS #: None								

CHROMIUM								
Acute effects of exposure to chromium include irritation, lung damage, and pneumonia.								
TOXICITY								
Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(oral)}$	Rat	27.5 mg/kg	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data
Specific organ toxicity, single exposure: May cause respiratory irritation				Specific organ toxicity, repeated exposure: No data available				
CARCINOGENICITY								
IARC	Group 3: Not classifiable as to its carcinogenicity to humans							
NTP	Not Listed							
California (Prop 65): Not Listed		**NIOSH:** Not Listed		**ACGIH:** Not Listed		**OSHA:** Not Listed		
MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS								
Respiratory or Skin sensitization: Testing showed no sensitization				Germ cell mutagenicity: test performed on rats showed negative results				
Reproductive toxicity: No data available				Teratogenicity: No data available				
Skin Corrosion/irritation: Testing showed no irritation				Serious eye damage, irritation-Testing showed no irritation				
Synergistic effects: No data available				Aspiration hazard: No data available				
RTECS #: GB4200000								

MOLYBDENUM

Exposure to Molybdenum can cause headache, fatigue, loss of appetite, and muscle and joint pain. Repeated exposure may raise the Uric Acid level in the body, which may lead to gout. Molybdenum may damage the liver and kidneys.

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(oral)}$	Mouse	> 5,000 mg/kg	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data

Specific organ toxicity, single exposure: No data available	Specific organ toxicity, repeated exposure: No data available

CARCINOGENICITY

IARC/NTP	Not Listed

California (Prop 65): Not Listed	**NIOSH:** Not Listed	**ACGIH:** Not Listed	**OSHA:** Not Listed

MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS

Respiratory or Skin sensitization: No data available	Germ cell mutagenicity: No data available
Reproductive toxicity: No data available	Teratogenicity: No data available
Skin Corrosion/irritation: No data available	Serious eye damage, irritation: No data available
Synergistic effects: No data available	Aspiration hazard: No data available
RTECS #: QA4680000	

COPPER

Copper can cause alterations in taste. It can also be an irritant to the mucous membranes.

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(oral)}$	Mouse	413 mg/kg	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data

Specific organ toxicity, single exposure: No data available	Specific organ toxicity, repeated exposure: No data available

CARCINOGENICITY

IARC/NTP	Not Listed

California (Prop 65): Not Listed	**NIOSH:** Not Listed	**ACGIH:** Not Listed	**OSHA:** Not Listed

MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS

Respiratory or Skin sensitization: No data available	Germ cell mutagenicity: No data available
Reproductive toxicity: No data available	Teratogenicity: No data available
Skin Corrosion/irritation: No data available	Serious eye damage, irritation: No data available
Synergistic effects: No data available	Aspiration hazard: No data available
RTECS #: GL5325000	

ALUMINUM

Exposure to aluminum can cause “metal fume fever.” This is a flu-like illness with symptoms of metallic taste in the mouth, headache, fever and chills, aches, chest tightness and cough. The symptoms may be delayed for several hours after exposure and usually last for a day or two.

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(Intra)}$	Rat	No Data	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data

Specific organ toxicity, single exposure: No data available				Specific organ toxicity, repeated exposure: No data available				
CARCINOGENICITY								
IARC/NTP	Not Listed							
California (Prop 65): Not Listed		**NIOSH:** Not Listed		**ACGIH:** A4: Not Classifiable as a Human Carcinogen		**OSHA:** Not Listed		
MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS								
Respiratory or Skin sensitization: No data available				Germ cell mutagenicity: No data available				
Reproductive toxicity: No data available				Teratogenicity: No data available				
Skin Corrosion/irritation: No data available				Serious eye damage, irritation: No data available				
Synergistic effects: No data available				Aspiration hazard: No data available				
RTECS #: BD0330000								
MANGANESE								
Acute effects of exposure to manganese include irritation, lung damage, and pneumonia. Chronic exposure results in central nervous system effects.								
TOXICITY								
Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(oral)}$	Rat	9 gm/kg	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data
Specific organ toxicity, single exposure: No data available				Specific organ toxicity, repeated exposure: No data available				
CARCINOGENICITY								
IARC/NTP	Not Listed							
California (Prop 65): Not Listed		**NIOSH:** Not Listed		**ACGIH:** A4: Not Classifiable as a Human Carcinogen		**OSHA:** Not Listed		
MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS								
Respiratory or Skin sensitization: No data available				Germ cell mutagenicity: test performed on rats showed negative results				
Reproductive toxicity: No data available				Teratogenicity: No data available				
Skin Corrosion/irritation: No data available				Serious eye damage, irritation -rabbit: mild eye irritation				
Synergistic effects: No data available				Aspiration hazard: No data available				
RTECS #: OO9275000								
TITANIUM								
Titanium dust inhalation may cause tightness and pain in chest, coughing, and difficulty in breathing. Contact with skin or eyes may cause irritation.								
TOXICITY								
Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$TD_{50(oral)}$	Rabbit	No Data	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (4 hours)	No Data
Specific organ toxicity, single exposure: No data available				Specific organ toxicity, repeated exposure: No data available				
CARCINOGENICITY								
IARC/NTP	Not Listed							
California (Prop 65): Not Listed		**NIOSH:** Not Listed		**ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans (TiO_2)		**OSHA:** Not Listed		
MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS								

Respiratory or Skin sensitization: No data available	Germ cell mutagenicity: No data available
Reproductive toxicity: No data available	Teratogenicity: No data available
Skin Corrosion/irritation: No data available	Serious eye damage, irritation: No data available
Synergistic effects: No data available	Aspiration hazard: No data available
RTECS #: XR1700000	

HEXAVALENT CHROMIUM

High temperature operations on stainless steel are a common source of hexavalent chromium generation. Hexavalent chromium can irritate the nose, throat, and lungs. Repeated or prolonged exposure can damage the mucous membranes of the nasal passages and result in ulcers. In severe cases, exposure causes perforation of the septum (the wall separating the nasal passages). Some employees become allergic to hexavalent chromium so that inhaling the chromate compounds can cause asthma symptoms such as wheezing and shortness of breath. Hexavalent chromium is carcinogenic to workers.

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result	Type of Dose	Specie	Result
$LD_{50(oral)}$	Rat	No Data	$LD_{50(dermal)}$	Rabbit	No Data	$LC_{50(inh)}$	Rat (1 hour)	No Data

Specific organ toxicity, single exposure: No data available	Specific organ toxicity, repeated exposure: No data available

CARCINOGENICITY

IARC	Group 1: carcinogenic to humans
NTP	Listed

California (Prop 65): Listed	**NIOSH:** Listed	**ACGIH:** A1 - Confirmed human carcinogen	**OSHA:** Listed 29 CFR 1910.1026

MUTAGENICITY, TERATOGENICITY AND REPRODUCTIVE EFFECTS

Respiratory or Skin sensitization: No data available	Germ cell mutagenicity: No data available
Reproductive toxicity: No data available	Teratogenicity: No data available
Skin Corrosion/irritation: No data available	Serious eye damage, irritation: No data available
Synergistic effects: No data available	Aspiration hazard: No data available
RTECS #: GB6262000	

SECTION 12 ✵ ECOLOGICAL INFORMATION

No Data Available for this product as sold/shipped. However, individual components of the product when processed have been found to be potentially hazardous to the environment.

IRON

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	Striped bass	13.6 mg/L 96 hour	EC_{50}	----------	No Data

Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data

COPPER

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	Fathead Minnow 96 hours	0.0068-0.0156 mg/L	EC_{50}	Water Flea 48 hours	0.03 mg/L

Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data

MANGANESE

TOXICITY

Type of Dose	Specie	Result	Type of Dose	Specie	Result

LC_{50}	Rainbow Trout 96 hours	> 3.6 mg/L	EC_{50}	----------	No Data
Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data					
NICKEL					
TOXICITY					
Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	Rainbow Trout 96 hour	15.3 mg/L	EC_{50}	Water Flea 48 hours	0.074 mg/l
Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data					
CHROMIUM					
TOXICITY					
Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	Carp 96 hours	14.3 mg/L	EC_{50}	Water Flea 48 hours	0.07 mg/l
Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data					
Not applicable or no data					
COBALT					
TOXICITY					
Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	Zebra Fish 96 hours	100 mg/L	EC_{50}	Water Flea 48 hours	> 100 mg/l
Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data					
MOLYBDENUM					
TOXICITY					
Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	Rainbow Trout 96 hour	644 mg/L	EC_{50}	----------	No Data
Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data					
ALUMINUM					
TOXICITY					
Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	----------	No Data	EC_{50}	----------	No Data
Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data					
TITANIUM					
TOXICITY					
Type of Dose	Specie	Result	Type of Dose	Specie	Result
LC_{50}	----------	No Data	EC_{50}	----------	No Data
Persistence and Degradability/ Bioaccumulative Potential/Mobility in Soil: Not applicable or no data					

SECTION 13 ✱ DISPOSAL CONSIDERATIONS

Not Meant To Be All Inclusive - Check Local, State, And Federal Laws And Regulations

Waste Disposal Method: Metals may be reclaimed. Dispose of in a landfill in accordance with all local, state, and federal regulations.

SECTION 14 ▣ TRANSPORTATION INFORMATION

Not Meant To Be All Inclusive - Check Local, State, And Federal Laws And Regulations: Not Regulated

SECTION 15 ☽ REGULATORY INFORMATION

Agency	Listing: Guidance only, consult specific regulations			
OSHA: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be combustible or hazardous and require protection to comply with applicable Federal, state and local laws and regulations.				
CERCLA RQ's	Steel is not reportable, however, it contains hazardous substances that may be reportable if released in pieces with diameters less than or equal to 0.004 inches (RQ marked with an "*").			
	Chromium	5000 pounds *	Copper	5000 pounds *
	Nickel	100 pounds *		
EPCRA 313 (*De minimis*)	Nickel, Cobalt, Cadmium: 0.1%			
	Copper, Molybdenum, Vanadium, Aluminum, Manganese, Chromium: 1%			
CAA 112(r) TQ	None Listed			
Section 304 EHS RQ	None Listed			
Section 302 (EHS) TPQ	None Listed			
RCRA Code	Chromium-D007			
TSCA: Components of this product are listed on the TSCA Inventory				
SARA (40 CFR Part 355) TPQ's: None of the ingredients are listed				
SARA 302/304/311/312 extremely hazardous substances and emergency planning: None of the ingredients are listed				
New Jersey	Cobalt, Copper, Chromium, Manganese, Nickel, Molybdenum, Aluminum, Tungsten, Titanium, Vanadium, Silicon and Tantalum			
Pennsylvania	Aluminum, Cobalt, Copper, Chromium, Manganese, Molybdenum, Silicon, Nickel, Tungsten, Tantalum and Vanadium			
Massachusetts	Aluminum, Tungsten, Cobalt, Copper, Silicon, Molybdenum, Chromium, Manganese, Nickel and Tantalum			
California Prop. 65: This product may contain chemicals (nickel and cobalt) known to the state of California to cause cancer				
SARA 311/312 SDS distribution - chemical inventory:				
Clean Water Act (CWA) 307: Chromium, Copper and Nickel				
Clean Water Act (CWA) 311 and Clean Air Act Section 602 Class I and II Substances: None listed				

SECTION 16 ⌘ OTHER INFORMATION

NFPA LABEL

HMIS III LABEL

Personal Protection Index

NPCA recommends that PPE codes be determined by the employer, who is familiar with the actual conditions under which chemicals in the facility are used.

Acronym List

°F=degrees Fahrenheit	°C=degrees Celsius	ACGIH= American Conference of Industrial Hygienists
APR=Air Purifying Respirator	BCF= Bioconcentration Factor	BuAc=Butyl Acetate
CAS=Chemical Abstract Service	CERCLA= Comprehensive Environmental Response, Compensation, and Liability Act	CHEMTREC= Chemical Transportation Emergency Center
CNS=Central Nervous System	CWA=Clean Water Act	DOT=Department of Transportation
EC_{50}= Effective Concentration Fifty	EPA=Environmental Protection Agency	g/Kg=Grams per Kilogram
g/M^3=Grams per Cubic Meter	GHS=Global Harmonization System	H_2O=Water

Acronym List		
HAP=Hazardous Air Pollutants	HMIS= Hazardous Materials Identification System	IARC= International Agency for Research on Cancer
LC_{50}=Lethal Concentration Fifty	LD_{50}=Lethal Dose Fifty	LEL=Lower Explosive Limit
Log P_{ow} =Octanol/water partition coefficient	mg/Kg=Milligrams per Kilogram	mg/L=Milligrams per Liter
mL/Kg=Milliliters per Kilogram	mm HG=millimeters of mercury	N.O.S=Not Otherwise Specified
NFPA=National Fire Protection Association	NIOSH= National Institute for Occupational Safety and Health	NTP=National Toxicology Program
OSHA=Occupational Safety and Health Administration	PEL=Permissible Exposure Limit	ppm=Parts per Million
RCRA=Resource Conservation and Recovery Act	RQ=Reportable Quantities	RTECS=Registry of Toxic Effects of Chemical Substances
SARA= Superfund Amendments and Reauthorization Act	SDS=Safety Data Sheet	STEL=Short Term Exposure Limit
STOT=Single Target Organ Toxicity	TLV=Threshold Limit Value	TPQ=Threshold Planning Quantity
TSCA=Toxic Substance and Control Act	TWA=Time Weighted Average	UEL=Upper Explosive Limit

SDS REVISIONS: Reviewed and updated all Sections

SDS CREATION DATE: 06/16/15 **REVISION #1:** 11/11/22

DISCLAIMER

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SDS DEVELOPER: Cass Willard

Cass Willard, CIH

DATE: 11/11/22