#### **Safety Data Sheet**

#### Section 1: Identification

**Product identifier** 

Product Name • Aluminum Billets, Extrusions, or Logs

**Synonyms** • 6XXX Series Alloys including: 6005, 6005A, 6060, 6061, 6063,

6082, 6105, 6181, 6351, 6360, 6463; Aluminum; Wrought

**Aluminum Products** 

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

Recommended use • Various extruded aluminum parts, products and cast billet

Details of the supplier of the safety data sheet

Manufacturer • Bon L Manufacturing Co.

25 Bonnell Street Newnan, GA 30263

**United States** 

**Telephone (General)** • (770) 253-2020

**Emergency telephone number** 

Manufacturer • 1-800-424-9300 - Chemtrec - North America

#### Section 2: Hazard Identification

**United States (US)** 

According to: OSHA 29 CFR 1910.1200 HCS

#### Classification of the substance or mixture

**OSHA HCS 2012** 

Not classified

Label elements
OSHA HCS 2012

**Hazard statements** 

• No label element(s) required

Other hazards

**OSHA HCS 2012** 

 Product is solid metallic pieces, logs, or billets. Contact with hot metal may cause thermal burns. In solid state, this product is considered non-hazardous. Dust generated during fabrication, sawing, cutting, grinding, and/or welding of this product is

considered hazardous. Under United States Regulations (29 CFR 1910.1200(c) - Hazard Communication Standard), the product(s)

listed above are exempt as article(s) under stated normal

conditions of use.

#### Section 3 - Composition/Information on Ingredients

#### **Substances**

Material does not meet the criteria of a substance.

#### **Mixtures**

Composition			
Chemical Name	Identifiers	%	
Aluminum	CAS:7429-90-5	94% TO 99%	
Silicon	CAS:7440-21-3	0.2% TO 1.3%	
Magnesium	CAS:7439-95-4	0.25% TO 1.2%	
Manganese	CAS:7439-96-5	0.02% TO 1%	
Iron	CAS:7439-89-6	0.1% TO 0.7%	
Copper	CAS:7440-50-8	0.1% TO 0.4%	
Chromium	CAS:7440-47-3	0.04% TO 0.35%	
Zinc	CAS:7440-66-6	0.05% TO 0.25%	
Titanium	CAS:7440-32-6	0.1% TO 0.2%	

#### **Section 4: First-Aid Measures**

Description of first aid measures

Inhalation • It is unlikely that emergency treatment will be required. Move

victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms

continue, get medical attention.

**Skin** • If cut by metal, get medical attention, if needed.

**Eye** • If contact with material occurs flush eyes with water. Get medical

attention immediately.

• If a piece of metal is swallowed, get medical attention, if needed.

Most important symptoms and effects, both acute and delayed

• Under normal conditions of use, no health effects are expected.

Indication of any immediate medical attention and special treatment needed

Notes to Physician • No specific actions or treatments recommended related to

exposure to this material.

#### Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media • In case of fire use media as appropriate for surrounding fire.

**Unsuitable Extinguishing** 

Media • No data available

Special hazards arising from the substance or mixture

#### **Unusual Fire and Explosion Hazards**

• Material is non-combustible and is not expected to pose a fire or

explosion hazard.

#### **Hazardous Combustion Products**

• Acid halides, oxides of carbon, hydrocarbons, hydrogen

cyanide, oxides of nitrogen.

Advice for firefighters

• Wear positive pressure self-contained breathing apparatus

(SCBA). Structural firefighters' protective clothing will only provide

limited protection.

#### Section 6 - Accidental Release Measures

#### Personal precautions, protective equipment and emergency procedures

**Personal Precautions** 

• No special precautions expected to be necessary if material is

used under ordinary conditions and as recommended.

**Emergency Procedures** 

• No emergency procedures are expected to be necessary if material is used under ordinary conditions as recommended. Use

normal clean up procedures.

**Environmental precautions** 

Avoid run off to waterways and sewers.

Methods and material for containment and cleaning up Containment/Clean-up Measures

• Carefully shovel or sweep up spilled material and place in

suitable container.

#### Section 7 - Handling and Storage

#### Precautions for safe handling

Handling

• Use good safety and industrial hygiene practices. Caution, the product may be hot and may have sharp edges. Machining or tooling aluminum extrusions may create sharp edges capable of cutting or penetrating flesh. Wear gloves, eye protection, and skin protection when working with aluminum extrusions. Stock piles, scrap extrusions and cuttings may create trip, slip, or fall hazards if allowed to accumulate. Keep work areas clear and orderly.

#### Conditions for safe storage, including any incompatibilities

Storage

• Store and handle in accordance with all current regulations and

standards.

#### Section 8 - Exposure Controls/Personal Protection

#### **Control parameters**

Exposure Limits/Guidelines					
	Result	ACGIH	NIOSH	OSHA	
Manganese	Ceilings	Not established	Not established	5 mg/m3 Ceiling (fume)	
	TWAs	0.02 mg/m3 TWA (respirable fraction); 0.1 mg/m3 TWA (inhalable	1 mg/m3 TWA (fume)	Not established	

		fraction)		
	STELs	Not established	3 mg/m3 STEL	Not established
Chromium (7440-47-3)	TWAs	0.5 mg/m3 TWA	0.5 mg/m3 TWA	1 mg/m3 TWA
Copper (7440-50-8)	TWAs	0.2 mg/m3 TWA (fume)	1 mg/m3 TWA (dust and mist); 0.1 mg/m3 TWA (fume)	0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)
Silicon (7440-21-3)	TWAs	Not established	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Aluminum (7429-90-5)	TWAs	1 mg/m3 TWA (respirable fraction)	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

# **Exposure Control Notations ACGIH**

- •Aluminum (7429-90-5): Carcinogens: (A4 Not Classifiable as a Human Carcinogen)
- •Aluminum as Aluminum insoluble compounds: **Carcinogens**: (A4 Not Classifiable as a Human Carcinogen)
- •Manganese (7439-96-5): Carcinogens: (A4 Not Classifiable as a Human Carcinogen)
- •Chromium (7440-47-3): Carcinogens: (A4 Not Classifiable as a Human Carcinogen)

# **Exposure Limits Supplemental ACGIH**

- •Aluminum (7429-90-5): **TLV Basis Critical Effects:** (pneumoconiosis; lower respiratory tract irritation; neurotoxicity)
- •Aluminum as Aluminum insoluble compounds: **TLV Basis Critical Effects:** (pneumoconiosis; lower respiratory tract irritation; neurotoxicity)
- •Copper (7440-50-8): **TLV Basis Critical Effects:** (metal fume fever (fume))
- •Copper as Copper compounds: **TLV Basis Critical Effects:** (gastrointestinal (dust and mist); irritation (dust and mist))
- •Manganese (7439-96-5): TLV Basis Critical Effects: (CNS impairment)
- •Chromium (7440-47-3): TLV Basis Critical Effects: (skin and upper respiratory tract irritation)

#### **Exposure controls**

Engineering

Measures/Controls • Adequate ventilation systems as needed to control

concentrations of airborne contaminants below applicable

threshold limit values.

**Personal Protective Equipment** 

**Respiratory**• In case of insufficient ventilation, wear suitable respiratory

equipment.

**Eye/Face** • Wear safety glasses.

#### Skin/Body Environmental Exposure Controls

- · Wear appropriate gloves.
- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

#### Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

STEL = Short Term Exposure Limits are based on 15-minute exposures

NIOSH = National Institute of Occupational Safety and Health

TLV = Threshold Limit Value determined by the American Conference of Governmental Industrial Hygienists (ACGIH)

OSHA = Occupational Safety and Health Administration

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

#### Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Solid silver-like metal with no odor.
Color	Silver	Odor	No odor.
Odor Threshold	Not relevant		
General Properties			
Boiling Point	Not relevant	Melting Point/Freezing Point	593 to 704 °C (1099.4 to 1299.2 °F)
Decomposition Temperature	No data available	pH	No data available
Specific Gravity/Relative	2.5 to 2.9 Water=1	Water Solubility	Not relevant
Density			
Viscosity	No data available		
Volatility			
Vapor Pressure	Not relevant	Vapor Density	Not relevant
Evaporation Rate	No data available		
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Not relevant
Flammability (solid, gas)	Not flammable.		
Environmental			
Octanol/Water Partition coefficient	No data available		

#### Section 10: Stability and Reactivity

#### Reactivity

No dangerous reaction known under conditions of normal use.

#### **Chemical stability**

• Stable under normal temperatures and pressures.

#### Possibility of hazardous reactions

· Hazardous polymerization will not occur.

#### **Conditions to avoid**

Avoid generating dust or fumes.

#### Incompatible materials

• Acids, bases, oxidizing materials.

#### **Hazardous decomposition products**

• Combustion: acid halides, oxides of carbon, hydrocarbons, hydrogen cyanide, oxides of nitrogen Thermal decomposition products: hydrogen cyanide, hydrogen chloride,

### Section 11 - Toxicological Information

#### Information on toxicological effects

		Components
Aluminum (94% TO 99%)	7429-90-5	Multi-dose Toxicity: Inhalation-Man TCLo • 4 mg/m³ 1 Year(s)-Intermittent; Lungs, Thorax, or Respiration: Cough; Lungs, Thorax, or Respiration:  Dyspnea; Nutritional and Gross Metabolic: Gross Metabolite Changes: Weight loss or decreased weight gain; Inhalation-Rat TCLo • 206 mg/m³ 5 Hour(s) 30 Day(s)-Intermittent; Lungs, Thorax, or Respiration: Fibrosis (interstitial); Endocrine: Hypoglycemia; Blood: Changes in serum composition (e.g., TP, billirubin cholesterol)
Silicon (0.2% TO 1.3%)	7440-21-3	Acute Toxicity: Ingestion/Oral-Rat LD50 • 3160 mg/kg; Irritation: Eye-Rabbit • 3 mg • Mild irritation
Iron (0.1% TO 0.7%)	7439-89-6	Acute Toxicity: Ingestion/Oral-Rat LD50 • 750 mg/kg; Blood: Changes in serum composition (e.g., TP, bilirubin cholesterol); Biochemical :Enzyme inhibition, induction, or change in blood or tissue levels: Transaminases; Ingestion/Oral-Child TDLo • 77 mg/kg; behavioral: Irritability; Gastrointestinal: Nausea or vomiting; Blood: Normocytic anemia; Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 105 mg/kg 5 Week(s)-Continuous; Liver: Tumors; Tumorigenic: Active as anti-cancer agent; Tumorigenic: Protects against induction of experimental tumors
Copper (0.1% TO 0.4%)	7440-50-8	Acute Toxicity: Ingestion/Oral-Mouse TDLo • 108 mg/kg; Behavioral: Tremor; Gastrointestinal: Hypermotility, diarrhea; Gastrointestinal: Nausea or vomiting; Ingestion/Oral-Mouse TDLo • 158 mg/kg; Kidney, Ureter, and Bladder: Changes in tubules (including acute renal failure, acute tubular necrosis); Ingestion/Oral-Mouse TDLo • 232 mg/kg; Kidney, Ureter, and Bladder: Changes primarily in glomeruli; Blood: Changes in spleen; Blood: Changes in serum composition (e.g., TP, bilirubin cholesterol); Multi-dose Toxicity: Ingestion/Oral-Rabbit TDLo • 3 g/kg 60 Day(s)-Continuous; Cardiac: Other changes; Liver: Hepatitis (hepatocellular necrosis), zonal; Related to Chronic Data:Death in the Other Multiple Dose data type field; Reproductive: Ingestion/Oral-Rat TDLo • 152 mg/kg (22W pre); Reproductive Effects: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus); Reproductive Effects: Specific Developmental Abnormalities: Central nervous system; Ingestion/Oral-Rat TDLo • 1210 µg/kg (35W pre); Reproductive Effects: Effects on Fertility: Pre-implantation mortality; Reproductive Effects: Effects on Fertility: Pre-implantation mortality; Ingestion/Oral-Rat TDLo • 1520 µg/kg (22W pre); Reproductive Effects: Specific Developmental Abnormalities: Musculoskeletal system; Tumorigen / Carcinogen: Ingestion/Oral-Mouse TDLo • 10.08 mg/kg 12 Week(s)-Continuous;
Manganese (0.02% TO 1%)	7439-96-5	Acute Toxicity: Ingestion/Oral-Rat LD50 • 9 g/kg; Inhalation-Man TCLo • 2300 µg/m³; Brain and Coverings: Other degenerative changes; Behavioral: Changes in motor activity (specific assay); Behavioral: Muscle weakness;

		Irritation: Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;  Multi-dose Toxicity: Inhalation-Human TCLo • 0.5 mg/m³ 39 Week(s)-Intermittent; Brain and Coverings: Other degenerative changes; Peripheral Nerve and Sensation: Sensory change involving peripheral nerve; Behavioral: Irritability; Inhalation-Mouse TCLo • 0.7 mg/m³ 24 Hour(s) 22 Week(s)-Continuous; Lungs, Thorax, or Respiration: Fibrosis (interstitial); Immunological Including Allergic: Decrease in cellular immune response; Inhalation-Rat TCLo • 0.3 mg/m³ 5 Hour(s) 26 Week(s)-Intermittent; Lungs, Thorax, or Respiration: Fibrosis (interstitial); Immunological Including Allergic: Decrease in cellular immune response; Reproductive: Ingestion/Oral-Mouse TDLo • 322.5 mg/kg (43D male); Reproductive Effects: Paternal Effects: Spermatogenesis; Ingestion/Oral-Rat TDLo • 50 mg/kg (20D post); Reproductive Effects: Specific Developmental Abnormalities: Central nervous system; Reproductive Effects: Effects on Newborn: Biochemical and metabolic; Reproductive Effects: Effects on Newborn: Behavioral
Zinc (0.05% TO 0.25%)	7440-66-6	Irritation: Skin-Human • 300 μg 3 Day(s)-Intermittent • Mild irritation; Tumorigen / Carcinogen: Ingestion/Oral-Mouse TDLo • 12.6 mg/kg 46 Week(s)-Continuous; Tumorigenic: Carcinogenic by RTECS criteria; Gastrointestinal: Tumors; Tumorigenic: Facilitates action of known carcinogen
Titanium (0.1% TO 0.2%)	7440-32-6	Reproductive: Ingestion/Oral-Rat TDLo • 158 mg/kg (multigeneration); Reproductive Effects: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus); Reproductive Effects: Effects on Embryo or Fetus: Fetal death

GHS Properties	Classification
Acute toxicity	OSHA HCS 2012 • Not relevant
Skin corrosion/Irritation	OSHA HCS 2012 • Not relevant
Serious eye damage/Irritation	OSHA HCS 2012 • Not relevant
Skin sensitization	OSHA HCS 2012 • Not relevant
Respiratory sensitization	OSHA HCS 2012 • Not relevant
Aspiration Hazard	OSHA HCS 2012 • Not relevant
Carcinogenicity	OSHA HCS 2012 • Not relevant
Germ Cell Mutagenicity	OSHA HCS 2012 • Not relevant
Toxicity for Reproduction	OSHA HCS 2012 • Not relevant
STOT-SE	OSHA HCS 2012 • Not relevant
STOT-RE	OSHA HCS 2012 • Not relevant

# Potential Health Effects Inhalation

Acute (Immediate) Chronic (Delayed) • Under normal conditions of use, no health effects are expected.

· No data available

Skin

Acute (Immediate) Chronic (Delayed) • Under normal conditions of use, no health effects are expected.

No data available

Eye

Acute (Immediate) Chronic (Delayed) • Under normal conditions of use, no health effects are expected.

No data available

Ingestion

Acute (Immediate) Chronic (Delayed) • Under normal conditions of use, no health effects are expected.

· No data available

#### Key to abbreviations

LD = Lethal Dose TC= Toxic Concentration TD= Toxic Dose

#### **Section 12 - Ecological Information**

#### **Toxicity**

 Non-mandatory section - information not compiled for this reason.

#### Persistence and degradability

 Non-mandatory section - information not compiled for this reason.

#### Bio accumulative potential

• Non-mandatory section - information not compiled for this reason.

#### **Mobility in Soil**

• Non-mandatory section - information not compiled for this

#### Other adverse effects

 Non-mandatory section - information not compiled for this reason.

#### Section 13 - Disposal Considerations

#### Waste treatment methods

Product waste

• Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

#### **Packaging waste**

• Dispose of content and/or container in accordance with local,

regional, national, and/or international regulations.

#### **Section 14 - Transport Information**

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards
DOT	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA

#### Special precautions for user

None known.

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

#### Section 15 - Regulatory Information

# Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • None

		State Right To Know	N	
Component	CAS	MA	NJ	PA
Aluminum	7429-90-5	Yes	Yes	Yes
Chromium	7440-47-3	Yes	Yes	Yes
Copper	7440-50-8	Yes	Yes	Yes
Iron	7439-89-6	No	No	No
Magnesium	7439-95-4	Yes	Yes	Yes
Manganese	7439-96-5	Yes	Yes	Yes
Silicon	7440-21-3	Yes	Yes	Yes
Titanium	7440-32-6	No	Yes	No
Zinc	7440-66-6	Yes	Yes	Yes

Inventory			
Component	CAS	TSCA	
Aluminum	7429-90-5	Yes	
Chromium	7440-47-3	Yes	
Copper	7440-50-8	Yes	
Iron	7439-89-6	Yes	
Magnesium	7439-95-4	Yes	
Manganese	7439-96-5	Yes	
Silicon	7440-21-3	Yes	
Titanium	7440-32-6	Yes	
Zinc	7440-66-6	Yes	

#### **United States**

#### Labor

U.S OSHA -	<ul> <li>Process Safety</li> </ul>	/ Management	- Highly	y Hazardous Chemicals

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	Not Listed
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

### U.S. - OSHA - Specifically Regulated Chemicals

 7440-50-8	Not Listed
7440-47-3	Not Listed
7439-96-5	Not Listed
7429-90-5	Not Listed
7440-21-3	Not Listed
7440-66-6	Not Listed
7439-89-6	Not Listed
7439-95-4	Not Listed
7440-32-6	Not Listed
	7440-47-3 7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4

#### **Environment**

U.S CAA	(Clean Air Act	) - 1990 Hazardous	Air Pollutants
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Copper	7440-50-8	Not Listed
Chromium	7440-47-3	Not Listed
Manganese	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 um): 2270 kg final RO (no

• Copper 7440-50-8 µm); 2270 kg final RQ (no

reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

• Chromium 7440-47-3 5000 lb final RQ (no reporting

of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100  $\mu$ m); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100  $\mu$ m)

454 kg final RQ (no reporting

Manganese
Aluminum
Silicon
7439-96-5
Not Listed
Not Listed
Not Listed
Not Listed

of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 1000 lb final RQ (no

7440-66-6

reporting of releases of this hazardous substance is

Zinc

required if the diameter of the
pieces of the solid metal
released is >100 um)

• Iron	7439-89-6	Not Listed
Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	Not Listed
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	Not Listed
Manganese	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
• Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	Not Listed
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### U.S. - CERCLA/SARA - Section 313 - Emission Reporting

Copper	7440-50-8	1.0 % de minimis concentration
<ul> <li>Chromium</li> </ul>	7440-47-3	1.0 % de minimis concentration
<ul> <li>Manganese</li> </ul>	7439-96-5	1.0 % de minimis concentration

• Aluminum	7429-90-5	1.0% de minimis Concentration (dust or Fume only)
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	1.0 % de minimis
21110	7 1 10 00 0	concentration (dust or fume only)
• Iron	7439-89-6	Not Listed
Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed
Thailiann	1110 02 0	rtot Elotod
U.S CERCLA/SARA - Section 313	- PBT Chemical Listing	
Copper	7440-50-8	Not Listed
Chromium	7440-47-3	Not Listed
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed
U.S RCRA (Resource Conservation	n & Recovery Act) - Ba	sis for Listing - Appendix VII
O	7440 50 0	NI - C. I. S. C. C. I.
Copper	7440-50-8	Not Listed
• •		Included in waste streams:
Copper     Chromium	7440-50-8 7440-47-3	Included in waste streams: F032, F034, F035, F037, F038,
Chromium	7440-47-3	Included in waste streams: F032, F034, F035, F037, F038, F039
Chromium     Manganese	7440-47-3 7439-96-5	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium     Manganese     Aluminum	7440-47-3 7439-96-5 7429-90-5	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed Not Listed
<ul><li> Chromium</li><li> Manganese</li><li> Aluminum</li><li> Silicon</li></ul>	7440-47-3 7439-96-5 7429-90-5 7440-21-3	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed Not Listed Not Listed
<ul><li>Chromium</li><li>Manganese</li><li>Aluminum</li><li>Silicon</li><li>Zinc</li></ul>	7440-47-3 7439-96-5 7429-90-5 7440-21-3 7440-66-6	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed Not Listed Not Listed Not Listed Not Listed
<ul> <li>Chromium</li> <li>Manganese</li> <li>Aluminum</li> <li>Silicon</li> <li>Zinc</li> <li>Iron</li> </ul>	7440-47-3 7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
<ul> <li>Chromium</li> <li>Manganese</li> <li>Aluminum</li> <li>Silicon</li> <li>Zinc</li> <li>Iron</li> <li>Magnesium</li> </ul>	7440-47-3 7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
<ul> <li>Chromium</li> <li>Manganese</li> <li>Aluminum</li> <li>Silicon</li> <li>Zinc</li> <li>Iron</li> </ul>	7440-47-3 7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
<ul> <li>Chromium</li> <li>Manganese</li> <li>Aluminum</li> <li>Silicon</li> <li>Zinc</li> <li>Iron</li> <li>Magnesium</li> <li>Titanium</li> </ul>	7440-47-3 7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4 7440-32-6	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
<ul> <li>Chromium</li> <li>Manganese</li> <li>Aluminum</li> <li>Silicon</li> <li>Zinc</li> <li>Iron</li> <li>Magnesium</li> </ul>	7440-47-3 7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4 7440-32-6	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium  Manganese Aluminum Silicon Zinc Iron Magnesium Titanium  U.S RCRA (Resource Conservation)	7440-47-3  7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4 7440-32-6  n & Recovery Act) - Co	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium  Manganese Aluminum Silicon Zinc Iron Magnesium Titanium  U.S RCRA (Resource Conservation	7440-47-3  7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4 7440-32-6  n & Recovery Act) - Co 7440-50-8	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium  Manganese Aluminum Silicon Zinc Iron Iron Magnesium Titanium  U.S RCRA (Resource Conservation Copper Chromium	7440-47-3  7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4 7440-32-6 <b>n &amp; Recovery Act) - Co</b> 7440-50-8 7440-47-3	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium  Manganese Aluminum Silicon Zinc Iron Magnesium Titanium  U.S RCRA (Resource Conservation Copper Chromium Manganese	7440-47-3  7439-96-5  7429-90-5  7440-21-3  7440-66-6  7439-89-6  7439-95-4  7440-32-6 <b>n &amp; Recovery Act) - Co</b> 7440-50-8  7440-47-3  7439-96-5	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium  Manganese Aluminum Silicon Zinc Iron Magnesium Titanium  U.S RCRA (Resource Conservation Copper Chromium Manganese Aluminum	7440-47-3  7439-96-5 7429-90-5 7440-21-3 7440-66-6 7439-89-6 7439-95-4 7440-32-6 <b>n &amp; Recovery Act) - Co</b> 7440-50-8 7440-47-3 7439-96-5 7429-90-5	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium  Manganese Aluminum Silicon Zinc Iron Magnesium Titanium  U.S RCRA (Resource Conservation Copper Chromium Manganese Aluminum Silicon	7440-47-3  7439-96-5  7429-90-5  7440-21-3  7440-66-6  7439-89-6  7439-95-4  7440-32-6 <b>n &amp; Recovery Act) - Co</b> 7440-50-8  7440-47-3  7439-96-5  7440-21-3	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed
Chromium  Manganese Aluminum Silicon Zinc Iron Magnesium Titanium  U.S RCRA (Resource Conservation Copper Chromium Manganese Aluminum Silicon Zinc Zinc	7440-47-3  7439-96-5  7429-90-5  7440-21-3  7440-66-6  7439-89-6  7439-95-4  7440-32-6 <b>n &amp; Recovery Act) - Co</b> 7440-50-8  7440-47-3  7439-96-5  7429-90-5  7440-21-3  7440-66-6	Included in waste streams: F032, F034, F035, F037, F038, F039 Not Listed Total) (total) Not Listed (total)

# U.S. - RCRA (Resource Conservation & Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Tox Characteristic

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	5.0 mg/L regulatory level
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

# U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	hazardous constituent - no waste number
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents

Copper	7440-50-8	(total)
Chromium	7440-47-3	(total)
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	(total)
• Iron	7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

# U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	2.77 mg/L (total, wastewater);
		0.60 mg/L TCLP (total,
		non-wastewater)
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	2.61 mg/L (wastewater); 4.3 mg/L TCLP (non-wastewater)
• Iron	7439-89-6	Not Listed

Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

# U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring

Copper	7440-50-8	(total)
Chromium	7440-47-3	(total)
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	(total)
• Iron	7439-89-6	Not Listed
Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### **United States - California**

#### **Environment**

#### U.S. - California - Proposition 65 - Carcinogens List

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	Not Listed
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### U.S. - California - Proposition 65 - Developmental Toxicity

Olor Gamorina	i i opooition oo	Dovolopilioniai Toxioi	• 9
<ul> <li>Copper</li> </ul>		7440-50-8	Not Listed
Chromium		7440-47-3	Not Listed
<ul> <li>Manganese</li> </ul>		7439-96-5	Not Listed
Aluminum		7429-90-5	Not Listed
<ul> <li>Silicon</li> </ul>		7440-21-3	Not Listed
<ul> <li>Zinc</li> </ul>		7440-66-6	Not Listed
• Iron		7439-89-6	Not Listed
<ul> <li>Magnesium</li> </ul>		7439-95-4	Not Listed
Titanium		7440-32-6	Not Listed

#### U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

7440-50-8	Not Listed
7440-47-3	Not Listed
7439-96-5	Not Listed
7429-90-5	Not Listed
7440-21-3	Not Listed
	7440-50-8 7440-47-3 7439-96-5 7429-90-5

<sup>•</sup> Zinc 7440-66-6 Not Listed

<ul><li>Iron</li><li>Magnesium</li><li>Titanium</li></ul>	7439-89-6 7439-95-4 7440-32-6	Not Listed Not Listed Not Listed	
U.S California - Proposition 65 - N			
Copper	7440-50-8	Not Listed	
Chromium	7440-47-3	Not Listed	
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed	
Aluminum	7429-90-5	Not Listed	
<ul> <li>Silicon</li> </ul>	7440-21-3	Not Listed	
• Zinc	7440-66-6	Not Listed	
• Iron	7439-89-6	Not Listed	
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed	
Titanium	7440-32-6	Not Listed	
U.S California - Proposition 65 - R	eproductive Toxicity - F	- Female	
Copper	7440-50-8	Not Listed	
Chromium	7440-47-3	Not Listed	
Manganese	7439-96-5	Not Listed	
Aluminum	7429-90-5	Not Listed	
Silicon	7440-21-3	Not Listed	
• Zinc	7440-66-6	Not Listed	
• Iron	7439-89-6	Not Listed	
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed	
Titanium	7440-32-6	Not Listed	
U.S California - Proposition 65 - Reproductive Toxicity - Male			
Copper	7440-50-8	Not Listed	
Chromium	7440-47-3	Not Listed	
Manganese	7439-96-5	Not Listed	
Aluminum	7429-90-5	Not Listed	
Silicon	7440-21-3	Not Listed	
• Zinc	7440-66-6	Not Listed	
• Iron	7439-89-6	Not Listed	
Magnesium	7439-95-4	Not Listed	
Titanium	7440-32-6	Not Listed	
United States - Pennsylvania			

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

7440-50-8

7440-47-3

7439-96-5

7429-90-5

7440-21-3

(dust; fume; metal)

Not Listed

#### 1377 Stonefield Ct. Alpharetta, GA 30004

Labor

• Copper

• Chromium

• Aluminum

• Silicon

Manganese

• Zinc	7440-66-6		
• Iron	7439-89-6	Not Listed	
<ul> <li>Magnesium</li> </ul>	7439-95-4	Not Listed	
Titanium	7440-32-6	Not Listed	

#### U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

Copper	7440-50-8	Not Listed
Chromium	7440-47-3	
<ul> <li>Manganese</li> </ul>	7439-96-5	Not Listed
Aluminum	7429-90-5	Not Listed
Silicon	7440-21-3	Not Listed
• Zinc	7440-66-6	Not Listed
• Iron	7439-89-6	Not Listed
Magnesium	7439-95-4	Not Listed
Titanium	7440-32-6	Not Listed

#### **Section 16 - Other Information**

Revision Date • 14/October/2016
Last Revision Date • 12/September/2016
Preparation Date • 12/September/2016
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#### Key to abbreviations

NDA = No Data Available