



SAFETY DATA SHEET

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

1. PRODUCT IDENTIFICATION

Trade Name(s): e.term af, e.term asl
Product Description: aluminum term bars
Synonyms: N/A
CAS No: N/A

Supplier:
EPRO Services, Inc.
PO Box 347
Derby, KS 67037
800-882-1896 (8:00am – 5:00pm CST)

2. HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US): Not classified

Label Elements

GHS-US Labeling: No labeling applicable

Other Hazards: This product is physiologically inert in its massive form. However, user-generated dust and/or fumes may pose a physiological hazard if inhaled or ingested. Avoid inhalation of metal dusts and fumes. May cause an influenza-like illness. Avoid skin and eye contact with dusts to prevent mechanical irritation. User-generated dust is easily ignited and difficult to extinguish. This product contains components that are environmentally hazardous and small chips, fine turnings, and dust from processing may be toxic to aquatic life.

Unknown Acute Toxicity (GHS-US): No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances: Not applicable

Mixtures

| Name | % (w/w) | Classification (GHS-US) |
|-------------------------------|----------------------------------|--|
| Aluminum CAS No 7429-90-5 | >89.9 | Comb. Dust; Flam. Sol 1, H228 Water-react. 2, H261 |
| Zinc CAS No 7440-66-6 | <0.1 0.1 – 1.0, 1.0 – 2.5 | Aquatic Acute 1, H400 Aquatic Chronic 1, H410 |
| Magnesium CAS No 7439-95-4 | <0.1, 0.1 – 1.0 1.0 – 2.1 | Flam. Sol. 1, H228; Self-heat. 2, H252 Water-react. 2, H261 |
| Silicon CAS No 7440-21-3 | <0.1, 0.1 – 1.0, 1.0 – 1.8 | Comb. Dust |
| Manganese | <0.1, | Comb. Dust |

| | | |
|------------------------------|---------------------------------|---|
| CAS No 7439-96-5 | 0.1 – 1.0, 1.0 – 1.5 | |
| Copper CAS No 7440-50-8 | <0.1, 0.1 – 1.0 1.0 – 1.3 | Comb. Dust Aquatic Acute 1, h400 Aquatic Chronic 3, H412 |
| Iron CAS No 7439-86-6 | <0.1, 0.1 – 1.0 1.0 – 1.1 | Comb. Dust Flam. Sol. 1, H228 Self-heat. 1, H251 |
| Chromium CAS No 7440-47-3 | <0.1, 0.1 – 0.5 | Comb. Dust |
| Lead CAS No 7439-92-1 | <0.1 | 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 |

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

Full text of H-phrases: see section 16

4. FIRST-AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If medical advice is needed, have product container or label at hand.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Skin Contact: Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance.

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: Do not induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

Most Important Symptoms and Effects Both Acute and Delayed

General: Under normal conditions of use not expected to present a significant hazard. During processing or physical alteration, flakes or powder cause irritation of the respiratory tract, eyes, skin, and are harmful. Molten material may release toxic, and irritating fumes.

Inhalation: During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude, and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea, and prostration may also occur.

Skin Contact: 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: During metal processing, dusts caused from milling and physical alteration will likely cause eye irritation.

Fumes from thermal decomposition or molten material will likely be irritating to the eyes. Mechanical damage via flying particles and chipped slag is possible.

Ingestion: Ingestion is not considered a potential route of exposure.

Chronic Symptoms: Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles.

Otherwise, zinc is non-toxic. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion. Silicon: Can cause chronic bronchitis and narrowing of the airways. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Anemia. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, and lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. 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.

Indication of Any Immediate Medical Attention and Special Treatment Needed: If you feel unwell, seek medical advice (show the label where possible).

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use water when molten material is involved, may react violently or explosively on contact with water.

Fire Hazard: Dust, chips, or ribbons can be ignited more easily, by an ignition source, by improper machining, or by spontaneous combustion if finely divided and damp.

Explosion Hazard: Product is not explosive.

Reactivity: Stable at ambient temperature and under normal conditions of use.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting Instructions: Do not breathe fumes from fires or vapors from decomposition.

Protection During Firefighting: Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

Hazardous Combustion Products: Oxides of magnesium. Oxides of copper. Oxides of aluminum. Oxides of lead.

Reference to Other Sections

Refer to section 9 for flammability properties.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not handle until all safety precautions have been read and understood. Avoid breathing (vapors, dust, fumes).

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Avoid creating or spreading dust.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection. Wear suitable protective clothing, gloves, and eye/face protection.

Emergency Procedures: Eliminate ignition sources. Evacuate unnecessary personnel, isolate, and ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Contain and collect as any solid. Avoid generation of dust during clean-up of spills.

Methods for Cleaning Up: Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

Reference to Other Sections: See Heading 8. Exposure controls and personal protection.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Do not allow water (or moist air) contact with this material. Product dust is combustible. Use care during processing to minimize generation of dust.

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 when leaving work. Do not eat, drink, or smoke when using this product. Wash hands and forearms thoroughly after handling. Always wash your hands immediately after handling this product, and once again before leaving the workplace.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in original container. Store in dry protected location to prevent any moisture contact. Keep away from heat and flame.

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

Special Rules on Packaging: Store in a closed container.

Specific End Use(s): Various extruded aluminum parts and products and cast billet.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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/m ³) | 10 mg/m ³ (dust) |
| USA ACGIH | ACGIH TWA (mg/m ³) | 1 mg/m ³ (respirable fraction) |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction) |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust) |
| Alberta | OEL TWA (mg/m ³) | 10 mg/m ³ (dust) |
| British Columbia | OEL TWA (mg/m ³) | 1.0 mg/m ³ (respirable) |
| Manitoba | OEL TWA (mg/m ³) | 1 mg/m ³ (respirable fraction) |
| New Brunswick | OEL TWA (mg/m ³) | 10 mg/m ³ (metal dust) |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 1 mg/m ³ (respirable fraction) |
| Nova Scotia | OEL TWA (mg/m ³) | 1 mg/m ³ (respirable fraction) |

| | | |
|------------------------------------|--------------------------------------|---|
| Nunavut | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 1 mg/m ³ (respirable) |
| Prince Edward Island | OEL TWA (mg/m ³) | 1 mg/m ³ (respirable fraction) |
| Québec | VEMP (mg/m ³) | 10 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 20 mg/m ³ (dust) |
| Saskatchewan | OEL TWA (mg/m ³) | 10 mg/m ³ (dust) |
| Silicon (7440-21-3) | | |
| Mexico | OEL TWA (mg/m ³) | 10 mg/m ³ (inhalable fraction) |
| Mexico | OEL STEL (mg/m ³) | 20 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction) |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust) |
| British Columbia | OEL TWA (mg/m ³) | 10 mg/m ³ (total dust) |
| New Brunswick | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 5 mg/m ³ (respirable mass) |
| Northwest Territories | OEL TWA (mg/m ³) | 5 mg/m ³ (respirable mass) |
| Ontario | OEL TWA (mg/m ³) | 10 mg/m ³ (total dust) |
| Québec | VEMP (mg/m ³) | 10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-total dust) |
| Saskatchewan | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 10 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 20 mg/m ³ |
| Yukon | OEL TWA (mg/m ³) | 30 mppcf |
| Copper (7440-50-8) | | |
| Mexico | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) 1 mg/m ³ (dust and mist) |
| Mexico | OEL STEL (mg/m ³) | 2 mg/m ³ (fume) 2 mg/m ³ (dust and mist) |
| USA ACGIH | ACGIH TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 0.1 mg/m ³ (fume) 1 mg/m ³ (dust and mist) |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 1 mg/m ³ (dust and mist) 0.1 mg/m ³ (fume) |
| USA IDLH | US IDLH (mg/m ³) | 100 mg/m ³ (dust, fume, and mist) |
| Alberta | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| British Columbia | OEL TWA (mg/m ³) | 1 mg/m ³ (dust and mist) |
| Manitoba | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| New Brunswick | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Nova Scotia | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Nunavut | OEL STEL (mg/m ³) | 0.6 mg/m ³ (fume) |
| Nunavut | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Northwest Territories | OEL STEL (mg/m ³) | 0.6 mg/m ³ (fume) |
| Northwest Territories | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Ontario | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |

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|------------------------------------|---|--|
| Prince Edward Island | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Québec | VEMP (mg/m ³) | 0.2 mg/m ³ (fume) |
| Saskatchewan | OEL STEL (mg/m ³) | 0.6 mg/m ³ (fume) |
| Saskatchewan | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Yukon | OEL STEL (mg/m ³) | 0.2 mg/m ³ (fume) |
| Yukon | OEL TWA (mg/m ³) | 0.2 mg/m ³ (fume) |
| Manganese (7439-96-5) | | |
| Mexico | OEL TWA (mg/m ³) | 0.2 mg/m ³ 1 mg/m ³ (fume) |
| Mexico | OEL STEL (mg/m ³) | 3 mg/m ³ (fume) |
| USA ACGIH | ACGIH TWA (mg/m ³) | 0.02 mg/m ³ (respirable fraction) 0.1 mg/m ³ (inhalable fraction) |
| USA OSHA | OSHA PEL (Ceiling) (mg/m ³) | 5 mg/m ³ (fume) |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 1 mg/m ³ (fume) |
| USA NIOSH | NIOSH REL (STEL) (mg/m ³) | 3 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 500 mg/m ³ |
| Alberta | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 0.02 mg/m ³ (respirable fraction) |
| New Brunswick | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 0.02 mg/m ³ (respirable fraction) |
| Nova Scotia | OEL TWA (mg/m ³) | 0.02 mg/m ³ (respirable fraction) |
| Nunavut | OEL Ceiling (mg/m ³) | 5 mg/m ³ |
| Nunavut | OEL STEL (mg/m ³) | 3 mg/m ³ (fume) |
| Nunavut | OEL TWA (mg/m ³) | 1 mg/m ³ (fume) |
| Northwest Territories | OEL Ceiling (mg/m ³) | 5 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 3 mg/m ³ (fume) |
| Northwest Territories | OEL TWA (mg/m ³) | 1 mg/m ³ (fume) |
| Ontario | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Prince Edward Island | OEL TWA (mg/m ³) | 0.02 mg/m ³ (respirable fraction) |
| Québec | VEMP (mg/m ³) | 0.2 mg/m ³ (total dust and fume) |
| Saskatchewan | OEL STEL (mg/m ³) | 0.6 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 0.2 mg/m ³ |
| Yukon | OEL Ceiling (mg/m ³) | 5 mg/m ³ |
| Chromium (7440-47-3) | | |
| Mexico | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| USA ACGIH | ACGIH TWA (mg/m ³) | 0.5 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 1 mg/m ³ |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 0.5 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 250 mg/m ³ |
| Alberta | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| New Brunswick | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Nova Scotia | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Nunavut | OEL STEL (mg/m ³) | 1.5 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 1.5 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Prince Edward Island | OEL TWA (mg/m ³) | 0.5 mg/m ³ |

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|-------------------------|--------------------------------------|---|
| Québec | VEMP (mg/m ³) | 0.5 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 1.5 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 3.0 mg/m ³ |
| Yukon | OEL TWA (mg/m ³) | 0.1 mg/m ³ |
| Lead (7439-92-1) | | |
| Mexico | OEL TWA (mg/m ³) | 0.15 mg/m ³ (dust and fume) |
| USA ACGIH | ACGIH TWA (mg/m ³) | 0.05 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 50 µg/m ³ |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 0.050 mg/m ³ |
| USA IDLH | US IDLH (mg/m ³) | 100 mg/m ³ |
| Alberta | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| New Brunswick | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| Nova Scotia | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| Nunavut | OEL STEL (mg/m ³) | 0.45 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 0.15 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 0.45 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 0.15 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 0.05 mg/m ³ (designated substances regulation) |
| Prince Edward Island | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| Québec | VEMP (mg/m ³) | 0.05 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 0.15 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 0.05 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 0.45 mg/m ³ (dust and fume) |
| Yukon | OEL TWA (mg/m ³) | 0.15 mg/m ³ (dust and fume) |

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Avoid dust production. Avoid creating or spreading dust. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

Personal Protective Equipment: Safety glasses. Gloves. Insufficient ventilation: wear respiratory protection. Protective clothing.



Materials for Protective Clothing: 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 face shield. Face shield.

Skin and Body Protection: Wear suitable protective clothing.

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

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink, or smoke during use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: None

pH: Not applicable

Melting Point: 1030 - 1210°F (554-654°C)

Boiling Point: Not applicable

Auto-ignition Temperature: Not available

Flammability (solid, gas): Not available

Upper Flammable Limit: Not available

Relative Vapor Density at 20°C: Not available

Solubility: Water: None

Viscosity: Not available

Specific gravity / density: 2.69-2.72 g/cm³ (0.097-0.099 lb/ft³)

Explosion Data – Sensitivity to Mechanical impact: Not expected to present explosion hazard due to mechanical impact

Explosion Data – Sensitivity to Static Discharge: Not expected to present explosion hazard due to static discharge

Appearance: Silvery plate, rod, bar, extrusion, etc.

Order Threshold: Not applicable

Evaporation Rate: Not available

Freezing Point: Not available

Flash Point: Not available

Decomposition Temperature: Not available

Lower Flammable Limit: Not available

Vapor Pressure: Not applicable

Relative Density: Not available

Partition coefficient n-octanol/water: Not applicable

Specific Gravity: Not available

10. STABILITY AND REACTIVITY

Reactivity: Stable at ambient temperature and under normal conditions of use.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Protect from moisture. Incompatible materials.

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

Hazardous Decomposition Products: Under conditions of fire this material may produce oxides of iron, oxides of copper, oxides of aluminum, oxides of zinc.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

pH: Not applicable

Serious Eye Damage/Irritation: Not classified

pH: Not applicable

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: During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper

respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude, and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea, and prostration may also occur.

Symptoms/Injuries After Skin Contact: 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: During metal processing, dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes. Mechanical damage via flying particles and chipped slag is possible.

Symptoms/Injuries After Ingestion: Ingestion is not considered a potential route of exposure.

Chronic Symptoms: Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Zinc: Prolonged exposure to high concentrations of zinc fumes may cause "zinc shakes", an involuntary twitching of the muscles. Otherwise, zinc is non-toxic. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion. Silicon: Can cause chronic bronchitis and narrowing of the airways. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Anemia.

Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, and lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. 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.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

| | |
|--|--|
| Iron (7439-89-6) | |
| LD50 Oral Rat | 98.6 g/kg |
| Manganese (7439-96-5) | |
| LD50 Oral Rat | > 2000 mg/kg |
| Chromium (7440-47-3) | |
| LD50 Oral Rat | > 5000 mg/kg |
| Lead (7439-92-1) | |
| ATE US (oral) | 500.00 mg/kg body weight |
| ATE US (dust, mist) | 1.50 mg/l/4h |
| Chromium (7440-47-3) | |
| IARC Group | 3 |
| Lead (7439-92-1) | |
| IARC Group | 2A |
| National Toxicology Program (NTP) Status | Reasonably anticipated to be Human Carcinogen. |

12. ECOLOGICAL INFORMATION (non-mandatory)

Toxicity

| Zinc (7440-66-6) | |
|--------------------------------|---|
| LC50 Fish 1 | 2.16 - 3.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) |
| EC50 Daphnia 1 | 0.139 - 0.908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static]) |
| LC 50 Fish 2 | 0.211 - 0.269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static]) |
| 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]) |
| Manganese (7439-96-5) | |
| NOEC chronic fish | 3.6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss) |
| 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]) |

Persistence and Degradability

| Copper (7440-50-8) | |
|-------------------------------|----------------------------|
| Persistence and Degradability | Not readily biodegradable. |

Bioaccumulative Potential: Not available

Mobility in Soil: Not available

Other Adverse Effects: Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS (non-mandatory)

Waste treatment methods

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.

Additional Information: Recycle the material as far as possible.

Ecology – Waste Materials: Avoid release to the environment.

14. TRANSPORT INFORMATION (non-mandatory)

DOT: Not regulated for transport

IMDG: Not regulated for transport

IATA: Not regulated for transport

TDG: Not regulated for transport

15. REGULATORY INFORMATION (non-mandatory)

US Federal Regulations

| | |
|---|---------------------------|
| Aluminum (7429-90-5) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 1.0 % (dust or fume only) |
| Silicon (7440-21-3) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Zinc (7440-66-6) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 1.0 % (dust or fume only) |
| Copper (7440-50-8) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 1.0 % |
| Magnesium (7439-95-4) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Iron (7439-89-6) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Manganese (7439-96-5) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 1.0 % |
| Chromium (7440-47-3) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 1.0 % |
| Lead (7439-92-1) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 0.1 % |

US State Regulations

| | |
|--|--|
| Lead (7439-92-1) | |
| U.S. - California - Proposition 65 - Carcinogens List | WARNING: This product contains chemicals known to the State of California to cause cancer. |
| U.S. - California - Proposition 65 - Developmental Toxicity | WARNING: This product contains chemicals known to the State of California to cause birth defects. |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female | WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm. |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male | WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm. |

| | |
|--|--|
| Aluminum (7429-90-5) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List | |
| Silicon (7440-21-3) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List | |
| Zinc (7440-66-6) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List | |
| Copper (7440-50-8) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List | |
| Magnesium (7439-95-4) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List | |
| Manganese (7439-96-5) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List | |
| Chromium (7440-47-3) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List | |
| Lead (7439-92-1) | |
| U.S. - Massachusetts - Right to Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List | |

Canadian Regulations

| | |
|--|--|
| Wrought Aluminum Products, 6xxx Series Alloys | |
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
| Aluminum (7429-90-5) | |
| Listed on the Canadian DSL (Domestic Substances List) Listed on the Canadian IDL (Ingredient Disclosure List) | |
| IDL Concentration 1 % | |
| WHMIS Classification | Class B Division 6 - Reactive Flammable Material Class B Division 4 - Flammable Solid |

| | |
|---|---|
| Silicon (7440-21-3) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
| Zinc (7440-66-6) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
| Copper (7440-50-8) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| Listed on the Canadian IDL (Ingredient Disclosure List) | |
| IDL Concentration 1 % | |
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
| Magnesium (7439-95-4) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Class B Division 4 - Flammable Solid Class B Division 6 - Reactive Flammable Material |
| Iron (7439-89-6) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Class B Division 4 - Flammable Solid Class B Division 6 - Reactive Flammable Material |
| Manganese (7439-96-5) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| Listed on the Canadian IDL (Ingredient Disclosure List) | |
| IDL Concentration 1 % | |
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
| Chromium (7440-47-3) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| Listed on the Canadian IDL (Ingredient Disclosure List) | |
| IDL Concentration 0.1 % | |
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
| Lead (7439-92-1) | |
| Listed on the Canadian DSL (Domestic Substances List) | |
| Listed on the Canadian IDL (Ingredient Disclosure List) | |
| IDL Concentration 0.1 % | |
| WHMIS Classification | Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects |

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

16. OTHER INFORMATION**GHS Full Text Phrases:**

| | |
|--------------------------------------|--|
| 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 Chronic 1 | Hazardous to the aquatic environment - Chronic Hazard Category 1 |
| Aquatic Chronic 3 | Hazardous to the aquatic environment - Chronic Hazard Category 3 |
| Carc. 1B | Carcinogenicity Category 1B |
| Comb. Dust | Combustible Dust |
| Flam. Sol. 1 | Flammable solids Category 1 |
| Repr. 1A | Reproductive toxicity Category 1A |
| Self-heat. 1 | Self-heating substances and mixtures Category 1 |
| Self-heat. 2 | Self-heating substances and mixtures Category 2 |
| STOT RE 1 | Specific target organ toxicity (repeated exposure) Category 1 |
| Water-react. 2 | Substances and mixtures which in contact with water emit flammable gases Category 2 |
| H228 | Flammable solid |
| H232 | May form combustible dust concentrations in air |
| H251 | Self-heating; may catch fire |
| H252 | Self-heating in large quantities; may catch fire |
| H261 | In contact with water releases flammable gases |
| H302 | Harmful if swallowed |
| H332 | Harmful if inhaled |
| H350 | May cause cancer |
| H360 | May damage fertility or the unborn child |
| H372 | Causes damage to organs through prolonged or repeated exposure |
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |
| H412 | Harmful to aquatic life with long lasting effects |

This information provided on 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 designated only as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.