



# MATERIAL SAFETY DATA SHEET

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## 1. Product and Company Identification

<b>Material Name</b>	<b>ALUMINUM EXTRUSIONS, ANODIZED ALUMINUM PRODUCTS</b>
<b>MSDS Number</b>	509
<b>Chemical Formula</b>	Mixture
<b>Product use</b>	Fabricated aluminum parts and products
<b>Synonym(s)</b>	Aluminum Alloys 6xxx Series
<b>Manufacturer information</b>	Alcoa Inc. 201 Isabella Street Pittsburgh, PA 15212-5858 US Health and Safety: +1-412-553-4649
<b>Emergency Information</b>	USA: Chemtrec: +1-703-527-3887 +1-800-424-9300 ALCOA: +1-412-553-4001
<b>Website</b>	For a current MSDS, refer to Alcoa websites: <a href="http://www.alcoa.com">www.alcoa.com</a> or Internally at <a href="http://my.alcoa.com">my.alcoa.com</a> EHS Community

## 2. Hazards Identification

<b>Emergency overview</b>	Solid. Silver colored. Odorless. Non-combustible as supplied. Small chips, fine turnings and dust from processing may be readily ignitable. Explosion/fire hazards may be present when (See Sections 5, 7 and 10 for additional information): <ul style="list-style-type: none"><li>• Dust or fines are dispersed in air.</li><li>• Chips, fines or dust are in contact with water.</li><li>• Dust and fines are in contact with certain metal oxides (e.g., rust, copper oxide).</li><li>• Molten metal is in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide).</li></ul> Dust and fumes from processing: Can cause irritation of the eyes, skin and respiratory tract and metal fume fever.
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### Potential health effects

The following statements summarize the health effects generally expected in cases of overexposures. User specific situations should be assessed by a qualified individual. Additional health information can be found in Section 11. The health effects listed below are not likely to occur unless processing of this product generates dusts or fumes.

<b>Eyes</b>	Dust and fumes from processing: Can cause irritation.
<b>Skin</b>	Dust and fumes from processing: Can cause irritation.
<b>Inhalation</b>	Dust and fumes from processing: Can cause irritation of upper respiratory tract.

Health effects from mechanical processing (e.g., cutting, grinding): Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis), secondary Parkinson's disease and reproductive harm in males.

Additional health effects from elevated temperature processing (e.g., welding, melting): Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise), reduced ability of the blood to carry oxygen (methemoglobin) and the accumulation of fluid in the lungs (pulmonary edema). Chronic overexposures: Can cause respiratory sensitization, scarring of the lungs (pulmonary fibrosis) and lung cancer.

### Carcinogenicity and Reproductive Hazard

Product as shipped: Does not present any cancer or reproductive hazards.  
Dust and fumes from mechanical processing: Does not present any cancer hazards. Can present a reproductive hazard for males (Manganese).  
Dust and fumes from welding or elevated temperature processing: Can present a cancer hazard (Hexavalent chromium compounds, Welding fumes). Can present a reproductive hazard (Manganese).

### Dross Handling

Small amounts of beryllium (<0.0002% or <2 ppm) can be present in aluminum alloys either from naturally occurring beryllium in aluminum ore or as an alloying element in the aluminum recycling stream. This beryllium does not present a health hazard during processing (grinding, cutting or welding) of aluminum products. However, beryllium may concentrate in the dross formed when aluminum scrap is remelted. Therefore, the potential for exposures to beryllium when handling dross must be considered. Control of airborne dust levels would be critical in reducing or eliminating this potential. For more information on the hazards associated with handling dross that contains beryllium, refer to Alcoa MSDS No. 1013, Aluminum Dross with Low Beryllium. Copies of this MSDS are available on [www.alcoa.com](http://www.alcoa.com) or by calling +412-553-4649.

**Medical conditions aggravated by exposure to product**

Dust or fume from processing: Asthma, chronic lung disease, Secondary Parkinson's disease and skin rashes.

### 3. Composition / Information on Ingredients

**Composition comments**

Complete composition is provided below and may include some components classified as non-hazardous.

Components	CAS #	Percent
Aluminum	7429-90-5	96 - 99
Zinc	7440-66-6	<6.5
Manganese	7439-96-5	<1.5
Magnesium	7439-95-4	<1.2
Chromium	7440-47-3	<0.35

**Additional Information**

Exact composition will vary. Unless additional information is available, processor should assume that all potential ingredients are present. Additional compounds which may be formed during processing are listed in Section 8.

### 4. First Aid Measures

**First aid procedures**

**Eye contact**

Dust and fume from processing: Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

**Skin contact**

Dust and fume from processing: Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Inhalation**

Dust and fume from processing: Remove to fresh air. Check for clear airway, breathing, and presence of pulse. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician.

### 5. Fire Fighting Measures

**Flammable/Combustible Properties**

This product does not present fire or explosion hazards as shipped. Small chips, fine turnings, and dust from processing may be readily ignitable.

**Fire / Explosion Hazards**

May be a potential hazard under the following conditions:

- Dust clouds may be explosive. Even a minor dust cloud can explode violently. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions.
- Chips, fines and dust in contact with water can generate flammable/explosive hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces.
- Dust and fines in contact with certain metal oxides (e.g., rust, copper oxide). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source.
- Molten metal in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide). Moisture entrapped by molten metal can be explosive. Contact of molten aluminum with certain metal oxides can initiate a thermite reaction. Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermite reactions/explosions.

**Extinguishing media**

**Suitable extinguishing media**

Use Class D extinguishing agents on fines, dust or molten metal. Use coarse water spray on chips and turnings.

**Unsuitable extinguishing media**

DO NOT use halogenated extinguishing agents on small chips/fines. DO NOT use water in fighting fires around molten metal. These fire extinguishing agents will react with the burning material.

**Protection of firefighters**

**Protective equipment for firefighters**

Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

### 6. Accidental Release Measures

**Spill or leak procedure**

If molten: Contain the flow using dry sand or salt flux as a dam. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated and rust free. Allow the spill to cool before remelting as scrap.

## 7. Handling and Storage

### Handling

Avoid generating dust. Avoid contact with sharp edges or heated metal. Hot and cold aluminum are not visually different. Hot aluminum does not necessarily glow red.

### Storage

Keep material dry.

### Requirements for Processes Which Generate Dusts or Fines

If processing of this product generates dust or if extremely fine particulate is generated, obtain and follow the safety procedures and equipment guides contained in Aluminum Association Bulletin F-1 and National Fire Protection Association (NFPA) brochures listed in Section 16.

Use non-sparking handling equipment. Cover and reseal partially empty containers. Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations (See Section 15).

Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuums and electrostatic precipitators must not be used, unless specifically approved for use with flammable/explosive dusts. Dust collection systems must be dedicated to aluminum dust only and should be clearly labeled as such. Do not co-mingle fines of aluminum with fines of iron, iron oxide (rust) or other metal oxides.

Do not allow small chunks, fines or dust to contact water, particularly in enclosed areas.

Avoid all ignition sources. Good housekeeping practices must be maintained. Do not use compressed air to remove settled material from floors, beams or equipment.

### Requirements for Remelting of Scrap Material or Ingot

Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off the water. Water and other forms of contamination on or contained in scrap or remelt ingot are known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment. If confined, even a few drops of water can lead to violent explosions.

All tooling and containers which come in contact with molten metal must be preheated or specially coated and rust free. Molds and ladles must be preheated or oiled prior to casting. Any surfaces that may contact molten metal (i.e., concrete) should be specially coated.

Drops of molten metal in water (e.g. from plasma arc cutting), while not normally an explosion hazard, can generate enough flammable hydrogen gas to present an explosion hazard. Vigorous circulation of the water and removal of the particles minimize the hazards.

During melting operations, the following minimum guidelines should be observed:

- Inspect all materials prior to furnace charging and completely remove surface contamination such as water, ice, snow, deposits of grease and oil or other surface contamination resulting from weather exposure, shipment, or storage.
- Store materials in dry, heated areas with any cracks or cavities pointed downwards.
- Preheat and dry large items adequately before charging into a furnace containing molten metal. This is typically done by use of a drying oven or homogenizing furnace. The drying cycle should bring the metal temperature of the coldest item of the batch to 400°F (200°C) and then hold at that temperature for 6 hours.

## 8. Exposure Controls / Personal Protection

### Engineering controls

Dust and fumes from mechanical processing: Use with adequate explosion-proof ventilation to meet the limits listed in Section 8.

### Exposure data

#### Compounds Formed During Processing

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

Chromium (VI) compounds (18540-29-9)	2.5 µg/m <sup>3</sup> Action Level (as Cr.); 5 µg/m <sup>3</sup> TWA (as Cr, Cancer hazard - See 29 CFR 1910.1026)
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### Occupational exposure limits

#### ACGIH

#### Components

Components	Type	Value	Form
Aluminum (7429-90-5)	TWA (respirable fraction)	1 mg/m <sup>3</sup>	(respirable fraction)
Chromium (7440-47-3)	TWA	0.5 mg/m <sup>3</sup>	

Components	Type	Value	Form
Manganese (7439-96-5)	TWA	0.2 mg/m3	
<b>Compounds Formed During Processing</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Aluminum oxide (non-fibrous) (1344-28-1)	TWA	1 mg/m3	
Chromium (III) compounds (Not available)	TWA	0.5 mg/m3	(as Cr)
Chromium (VI) compounds, certain water insoluble forms (Not available)	TWA	0.01 mg/m3	(as Cr)
Chromium (VI) compounds, water soluble forms (Not available)	TWA	0.05 mg/m3	(as Cr)
Magnesium oxide (1309-48-4)	TWA	10 mg/m3	(inhalable fraction)
Manganese compounds, inorganic (Not available)	TWA	0.2 mg/m3	(as Mn)
Mineral oil (8012-95-1)	STEL	10 mg/m3	
	TWA	5 mg/m3	(sampled by method that does not collect vapor)
	TWA (inhalable fraction, miner)	0.2 mg/m3	(inhalable fraction, mineral oil used in metalworking)
	TWA (inhalable fraction, pure,	5 mg/m3	
Nitric oxide (10102-43-9)	TWA	25 ppm	
Nitrogen dioxide (10102-44-0)	STEL	5 ppm	
	TWA	3 ppm	
Ozone (10028-15-6)	TWA	0.08 ppm	(moderate work)
		0.1 ppm	(light work)
		0.2 ppm	(any workload, <= 2 hours)
	TWA (heavy work)	0.05 ppm	(heavy work)
Zinc oxide (1314-13-2)	STEL	10 mg/m3	(respirable fraction)
	TWA	2 mg/m3	(respirable fraction)

#### U.S. - OSHA

Components	Type	Value	Form
Aluminum (7429-90-5)	TWA	5 mg/m3	(respirable fraction)
	TWA (total dust)	15 mg/m3	(total dust)
Chromium (7440-47-3)	TWA	1 mg/m3	
Manganese (7439-96-5)	Ceiling	5 mg/m3	(fume)
<b>Compounds Formed During Processing</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Aluminum oxide (non-fibrous) (1344-28-1)	TWA	5 mg/m3	(respirable fraction)
	TWA (total dust)	15 mg/m3	(total dust)
Chromium (II) compounds (Not available)	TWA	0.5 mg/m3	(as Cr)
Chromium (III) compounds (Not available)	TWA	0.5 mg/m3	(as Cr)
Magnesium oxide (1309-48-4)	TWA	15 mg/m3	(total particulate)
Manganese compounds, inorganic (Not available)	Ceiling	5 mg/m3	(as Mn)
Mineral oil (8012-95-1)	TWA	5 mg/m3	
Nitric oxide (10102-43-9)	TWA	25 ppm	
		30 mg/m3	
Nitrogen dioxide (10102-44-0)	Ceiling	5 ppm	
		9 mg/m3	
Ozone (10028-15-6)	TWA	0.2 mg/m3	
		0.1 ppm	
Zinc oxide (1314-13-2)	TWA	5 mg/m3	(respirable fraction)
	TWA (fume)	5 mg/m3	(fume)
	TWA (total dust)	15 mg/m3	(total dust)

#### Alcoa

Components	Type	Value	Form
Aluminum (7429-90-5)	TWA	5 mg/m3	(respirable fraction)
	TWA (total dust)	10 mg/m3	(total dust)
Manganese (7439-96-5)	TWA	0.02 mg/m3	(respirable)
	TWA (total dust)	0.05 mg/m3	(total dust)

Compounds Formed During Processing	Type	Value	Form
Aluminum oxide (non-fibrous) (1344-28-1)	TWA	5 mg/m <sup>3</sup>	(8 Hour)
Chromium (VI) compounds (18540-29-9)	TWA	0.25 ug/m <sup>3</sup>	(8 Hour)
Mineral oil (8012-95-1)	TWA	0.5 mg/m <sup>3</sup>	(8 Hour)

#### Personal protective equipment

<b>Eye / face protection</b>	Wear safety glasses with side shields.
<b>Skin protection</b>	Wear impervious gloves to avoid repeated or prolonged skin contact with residual oils and to avoid any skin injury.
<b>Respiratory protection</b>	Dust and fumes from mechanical processing: Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8. Suitable respiratory protective device recommended: Filter NIOSH P95.

#### General

Personnel who handle and work with molten metal should utilize primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, spats and similar equipment to prevent burn injuries. In addition to primary protection, secondary or day-to-day work clothing that is fire resistant and sheds metal splash is recommended for use with molten metal. Synthetic materials should never be worn even as secondary clothing (undergarments).

If the product is coated with oil, wear oil-resistant gloves to avoid skin contact. Minimize breathing oil vapors and mist. Remove oil contaminated clothing; launder or dry-clean before reuse. Remove oil contaminated shoes and thoroughly clean and dry before reuse. Cleanse skin thoroughly after contact, before breaks and meals, and at the end of the work period. Oil coating is readily removed from skin with waterless hand cleaners followed by a thorough washing with soap and water.

### 9. Physical & Chemical Properties

<b>Form</b>	Solid.
<b>Appearance</b>	Silvery
<b>Boiling point</b>	Not applicable
<b>Melting point</b>	1025 - 1210 °F (551.7 - 654.4 °C)
<b>Flash point</b>	Not applicable
<b>Auto-ignition temperature</b>	Not applicable
<b>Flammability limits in air, lower, % by volume</b>	Not applicable
<b>Flammability limits in air, upper, % by volume</b>	Not applicable
<b>Vapor pressure</b>	Not applicable
<b>Vapor density</b>	Not applicable
<b>Solubility (water)</b>	None
<b>Density</b>	2.69 - 2.7 g/cm <sup>3</sup> (0.097 - 0.098 lb/in <sup>3</sup> )
<b>pH</b>	Not applicable
<b>Odor</b>	Odorless.
<b>Partition coefficient (n-octanol/water)</b>	Not applicable

### 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Stable under normal conditions of use, storage, and transportation as shipped.
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## Conditions to avoid

Chips, fines, dust and molten metal are considerably more reactive with the following:

- Water: Slowly generates flammable/explosive hydrogen gas and heat. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). Molten metal can react violently/explosively with water or moisture, particularly when the water is entrapped.
- Heat: Oxidizes at a rate dependent upon temperature and particle size.
- Strong oxidizers: Violent reaction with considerable heat generation. Can react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) when heated or molten.
- Acids and alkalis: Reacts to generate flammable/explosive hydrogen gas. Generation rate is greatly increased with smaller particles (e.g., fines and dusts).
- Halogenated compounds: Many halogenated hydrocarbons, including halogenated fire extinguishing agents, can react violently with finely divided or molten aluminum.
- Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides): A violent thermite reaction generating considerable heat can occur. Reaction with aluminum fines and dusts requires only very weak ignition sources for initiation. Molten aluminum can react violently with iron oxide without external ignition source.
- Iron powder and water: Explosive reaction forming hydrogen gas when heated above 1470°F (800°C).

## Hazardous polymerization

Hazardous polymerization does not occur.

## 11. Toxicological Information

### Health effects associated with ingredients

Aluminum dust/fines and fumes: Low health risk by inhalation. Generally considered to be biologically inert.

Manganese dust or fumes: Chronic overexposures: Can cause inflammation of the lung tissues, scarring of the lungs (pulmonary fibrosis), central nervous system damage, Secondary Parkinson's Disease and reproductive harm in males.

Chromium dust and fumes: Can cause irritation of eye, skin and respiratory tract. Metallic chromium and trivalent chromium: Not classifiable as to their carcinogenicity to humans by IARC.

Some products are supplied with an oil coating or have residual oil from the manufacturing process. Oil: Can cause irritation of skin. Skin contact (prolonged or repeated): Can cause dermatitis.

## Health effects associated with compounds formed during processing

The following could be expected if welded, remelted or otherwise processed at elevated temperatures:

Alumina (aluminum oxide): Low health risk by inhalation. Generally considered to be biologically inert.

Zinc oxide fumes: Can cause irritation of upper respiratory tract. Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

Manganese oxide fumes: Can cause irritation of the eyes, skin, and respiratory tract. Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

Magnesium oxide fumes: Can cause irritation of the eyes and respiratory tract. Acute overexposures: Can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise).

Hexavalent chromium compounds (Chromium VI): Can cause irritation of eye, skin and respiratory tract. Skin contact: Can cause irritant dermatitis, allergic reactions and skin ulcers. Chronic overexposures: Can cause perforation of the nasal septum, respiratory sensitization, asthma, the accumulation of fluid in the lungs (pulmonary edema), lung damage, kidney damage, lung cancer, nasal cancer and cancer of the gastrointestinal tract. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1).

If the product is heated well above ambient temperatures or machined, oil vapor or mist may be generated.

Oil vapor or mist: Can cause irritation of respiratory tract. Acute overexposures: Can cause bronchitis, headache, central nervous system effects (nausea, dizziness and loss of coordination) and drowsiness (narcosis).

Welding, plasma arc cutting, and arc spray metalizing can generate ozone.

Ozone: Can cause irritation of eyes, nose and upper respiratory tract. Acute overexposures: Can cause shortness of breath, tightness of chest, headache, cough, nausea and narrowing of airways. Effects are reversible on cessation of exposure. Acute overexposures (high concentrations): Can cause respiratory distress, respiratory tract damage, bleeding and the accumulation of fluid in the lungs (pulmonary edema). Effects can be delayed up to 1-2 hours. Additional information: Studies (inhalation) with experimental animals have found genetic damage, reproductive harm, blood cell damage, lung damage and death.

Welding fumes IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B). Additional information: In one study, occupational asthma was associated with exposures to fumes from aluminum welding.

Plasma arc cutting of aluminum can generate oxides of nitrogen. Oxides of nitrogen (NO and NO<sub>2</sub>): Can cause irritation of eyes, skin and respiratory tract. Acute overexposures: Can cause reduced ability of the blood to carry oxygen (methemoglobin). Can cause cough, shortness of breath, accumulation of fluid in the lungs (pulmonary edema) and death. Effects can be delayed up to 2-3 weeks. Nitrogen dioxide (NO<sub>2</sub>): Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis).

## Component analysis - LD50

### Components

#### Toxicology Data - Selected LD50s and LC50s

Magnesium (7439-95-4)	Oral LD50 Rat: 230 mg/kg
Manganese (7439-96-5)	Oral LD50 Rat: 9 g/kg

#### Compounds Formed During Processing

#### Toxicology Data - Selected LD50s and LC50s

Aluminum oxide (non-fibrous) (1344-28-1)	Oral LD50 Rat: >5000 mg/kg
Mineral oil (8012-95-1)	Oral LD50 Mouse: 22 g/kg
Nitric oxide (10102-43-9)	Inhalation LC50 Rat: 1068 mg/m <sup>3</sup> /4H
Nitrogen dioxide (10102-44-0)	Inhalation LC50 Rat: 88 ppm/4H
Ozone (10028-15-6)	Inhalation LC50 Rat: 4800 ppb/4H
Zinc oxide (1314-13-2)	Oral LD50 Rat: >5000 mg/kg

### Carcinogenicity

No information available for product.

### Components

#### ACGIH - Threshold Limit Values - Carcinogens

Chromium (7440-47-3)	A4 - Not Classifiable as a Human Carcinogen
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#### Compounds Formed During Processing

#### ACGIH - Threshold Limit Values - Carcinogens

Aluminum oxide (non-fibrous) (1344-28-1)	A4 - Not Classifiable as a Human Carcinogen
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## Compounds Formed During Processing

### ACGIH - Threshold Limit Values - Carcinogens

Chromium (III) compounds (Not available)	A4 - Not Classifiable as a Human Carcinogen
Chromium (VI) compounds, certain water insoluble forms (Not available)	A1 - Confirmed Human Carcinogen
Chromium (VI) compounds, water soluble forms (Not available)	A1 - Confirmed Human Carcinogen
Magnesium oxide (1309-48-4)	A4 - Not Classifiable as a Human Carcinogen
Nitrogen dioxide (10102-44-0)	A4 - Not Classifiable as a Human Carcinogen
Ozone (10028-15-6)	A4 - Not Classifiable as a Human Carcinogen (heavy, moderate, or light workloads)

### IARC - Group 1 (Carcinogenic to Humans)

Chromium (VI) compounds (18540-29-9)	Monograph 49 [1990] (evaluated as a group)
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### NTP (National Toxicology Program) - Report on Carcinogens - Known Human Carcinogens

Chromium (VI) compounds (18540-29-9)	Known Human Carcinogen
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### U.S. - OSHA - Specifically Regulated Carcinogens (1910.1001 to 1910.1096)

Chromium (VI) compounds (18540-29-9)	Workers exposed to Cr(VI) are at an increased risk of developing lung cancer - see 29 CFR 1910.1026
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## 12. Ecological Information

**Ecotoxicity** No data available for this product.

### Components

#### Ecotoxicity - Freshwater Algae Data

Zinc (7440-66-6) 96 Hr EC50 Selenastrum capricornutum: 30 µg/L

#### Ecotoxicity - Freshwater Fish Species Data

Zinc (7440-66-6) 96 Hr LC50 Pimephales promelas: 6.4 mg/L

#### Ecotoxicity - Water Flea Data

Zinc (7440-66-6) 72 Hr EC50 water flea: 5 µg/L

### Compounds Formed During Processing

#### Ecotoxicity - Freshwater Fish Species Data

Chromium (III) compounds (Not available) 96 Hr LC50 Oncorhynchus mykiss: 4.4 mg/L (juvenile); 96 Hr LC50 Pimephales promelas: 5.07 mg/L

Chromium (VI) compounds (18540-29-9) 96 Hr LC50 Pimephales promelas: 36.2 mg/L; 96 Hr LC50 Oncorhynchus mykiss: 7.6 mg/L

#### Ecotoxicity - Water Flea Data

Chromium (III) compounds (Not available) 96 Hr EC50 water flea: 2 mg/L; 96 Hr EC50 water flea: 168 mg/L

Chromium (VI) compounds (18540-29-9) 24 Hr EC50 water flea: 435 µg/L

**Environmental Fate** No data available for product.

## 13. Disposal Considerations

**Disposal instructions** Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.

**Waste codes** RCRA Status: Not federally regulated in the U.S. if disposed of "as is." RCRA waste codes other than described here may apply depending on use of the product. Status must be determined at time of disposal. Refer to 40 CFR 261 or state equivalent in the U.S.

## 14. Transport Information

### General Shipping Information

#### Basic shipping description:

<b>UN number</b>	-
<b>Proper shipping name</b>	Not regulated
<b>Hazard class</b>	-
<b>Packing group</b>	-

### General Shipping Notes

- When "Not regulated", enter the proper freight classification, MSDS Number and Product Name onto the shipping paperwork.



## 15. Regulatory Information

### US federal regulations

All electrical equipment must be suitable for use in hazardous atmospheres involving aluminum powder in accordance with 29 CFR 1910.307. The National Electrical Code, NFPA 70, contains guidelines for determining the type and design of equipment and installation which will meet this requirement.

In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals.

### Components

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

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 larger than 100 micrometers); 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 larger than 100 micrometers)

Zinc (7440-66-6)

1000 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 larger than 100 micrometers); 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the solid metal released is larger than 100 micrometers)

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

Aluminum (7429-90-5)

1.0 % de minimis concentration (dust or fume only)

Chromium (7440-47-3)

1.0 % de minimis concentration

Manganese (7439-96-5)

1.0 % de minimis concentration

Zinc (7440-66-6)

1.0 % de minimis concentration (dust or fume only)

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### Hazard categories

Immediate Hazard - Yes, If particulates/fumes generated during processing

Delayed Hazard - Yes, If particulates/fumes generated during processing

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - Yes, If molten

### State regulations

#### Components

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#### U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances

Aluminum (7429-90-5)

Present

Chromium (7440-47-3)

Present

Magnesium (7439-95-4)

Present

Manganese (7439-96-5)

Present

Zinc (7440-66-6)

Present

#### U.S. - Massachusetts - Right To Know List

Aluminum (7429-90-5)

Present

Chromium (7440-47-3)

Carcinogen; Extraordinarily hazardous

Magnesium (7439-95-4)

Present

Manganese (7439-96-5)

Present

Zinc (7440-66-6)

Present

#### U.S. - Minnesota - Hazardous Substance List

Aluminum (7429-90-5)

Present (dust)

Chromium (7440-47-3)

Present

Manganese (7439-96-5)

Present

#### U.S. - New Jersey - Right to Know Hazardous Substance List

Aluminum (7429-90-5)

sn 0054 (dust and fume); sn 2110 (powder, coated); sn 2111 (powder, uncoated, non-pyrophoric)

Chromium (7440-47-3)

sn 0432

Magnesium (7439-95-4)

sn 1136

Manganese (7439-96-5)

sn 1155 (dust and fume)

Zinc (7440-66-6)

sn 2021 (dust and fume)

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

Chromium (7440-47-3)

Present

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

Aluminum (7429-90-5)

Environmental hazard

Chromium (7440-47-3)

Environmental hazard; Special hazardous substance

## State regulations

### Components

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

Magnesium (7439-95-4)	Present
Manganese (7439-96-5)	Environmental hazard
Zinc (7440-66-6)	Environmental hazard

#### Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

## 16. Other Information

### MSDS History

Origination date: July 10, 1989  
Supersedes: October 12, 2005  
Revision date: January 6, 2009

### MSDS Status

January 6, 2009: New format.  
October 12, 2005: Reviewed on a periodic basis in accordance with Alcoa policy. Change(s) in Section: 1, 3, 4, 5, 7, 8, 11 and 15.  
July 25, 2002: New format.

### Prepared By

Hazardous Materials Control Committee  
Preparer: Jon Peace, 412-553-2293

### MSDS System Number

115726

### Other information

- Aluminum Association's Bulletin F-1, "Guidelines for Handling Aluminum Fines Generated During Various Aluminum Fabricating Operations." The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, [www.aluminum.org](http://www.aluminum.org).
- Aluminum Association, "Guidelines for Handling Molten Aluminum, The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, [www.aluminum.org](http://www.aluminum.org).
- NFPA 65, Standard for Processing and Finishing of Aluminum (NFPA phone: 800-344-3555)
- NFPA 651, Standard for Manufacture of Aluminum and Magnesium Powder
- NFPA 70, Standard for National Electrical Code (Electrical Equipment, Grounding and Bonding)
- NFPA 77, Standard for Static Electricity
- Guide to Occupational Exposure Values-2008, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
- Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition, 1991, Compiled by the American Conference of Governmental Industrial Hygienists, Inc. (ACGIH).
- NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, February 2004.
- Patty's Industrial Hygiene and Toxicology: Volume II: Toxicology, 4th ed., 1994, Patty, F. A.; edited by Clayton, G. D. and Clayton, F. E.: New York: John Wiley & Sons, Inc.
- expub, [www.expub.com](http://www.expub.com), Expert Publishing, LLC.

Key/Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Services
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
ENCS	Japan - Existing and New Chemical Substances
EWC	European Waste Catalogue
EPA	Environmental Protective Agency
IARC	International Agency for Research on Cancer
LC	Lethal Concentration
LD	Lethal Dose
MAK	Maximum Workplace Concentration (Germany) "maximale Arbeitsplatz-Konzentration"
NDSL	Non-Domestic Substances List (Canada)
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PIN	Product Identification Number
PMCC	Pensky Marten Closed Cup
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SIMDUT	Système d'Information sur les Matières Dangereuses Utilisées au Travail
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

m meter, cm centimeter, mm millimeter, in inch,  
g gram, kg kilogram, lb pound, µg microgram,  
ppm parts per million, ft feet

# ALUMINUM EXTRUSIONS, ANODIZED ALUMINUM PRODUCTS

## WARNING

Non-combustible as supplied. Small chips, fine turnings and dust from processing may be readily ignitable. Explosion/fire hazards may be present when: Dust or fines are dispersed in air; Chips, fines or dust are in contact with water; Dust and fines are in contact with certain metal oxides (e.g., rust, copper oxide). Molten metal is in contact with water/moisture or certain metal oxides (e.g., rust, copper oxide). Dust and fumes from processing: Can cause irritation of the eyes, skin and respiratory tract and metal fume fever. Health effects from mechanical processing (e.g., cutting, grinding): Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis), secondary Parkinson's disease and reproductive harm in males. Additional health effects from elevated temperature processing (e.g., welding, melting): Acute overexposures: Can cause metal fume fever, reduced ability of the blood to carry oxygen and the accumulation of fluid in the lungs (pulmonary edema). Chronic overexposures: Can cause respiratory sensitization, scarring of the lungs and lung cancer.

## FIRST AID

**Eye contact**

Dust and fume from processing: Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

**Skin contact**

Dust and fume from processing: Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Inhalation**

Dust and fume from processing: Remove to fresh air. Check for clear airway, breathing, and presence of pulse. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician.

## FIRE FIGHTING

**Suitable extinguishing media** Use Class D extinguishing agents on fines, dust or molten metal. Use coarse water spray on chips and turnings.

**Extinguishing media which must not be used for safety reasons** DO NOT use halogenated extinguishing agents on small chips/fines. DO NOT use water in fighting fires around molten metal. These fire extinguishing agents will react with the burning material.

## SPILL PROCEDURES

**Spill or leak procedure**

If molten: Contain the flow using dry sand or salt flux as a dam. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially coated and rust free. Allow the spill to cool before remelting as scrap.

## HANDLING AND STORAGE

**Handling**

Avoid generating dust. Avoid contact with sharp edges or heated metal. Wear appropriate personal protective equipment.

**Storage**

Keep material dry.

## Contains:

Aluminum

7429-90-5

Zinc

7440-66-6

Manganese

7439-96-5

Magnesium

7439-95-4

Chromium

7440-47-3

See Alcoa Material Safety Data Sheet No. 509 for more information about use and disposal.  
Emergency Phone: (412) 553-4001.

Alcoa Inc.

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1/09

