

SAFETY DATA SHEET

1. Product and Company Identification

Material Name ALUMINUM EXTRUSIONS, ANODIZED ALUMINUM PRODUCTS

MSDS Number 509

Chemical Formula Mixture

Product use Fabricated aluminum parts and products

Synonym(s) Aluminum Alloys 6xxx Series

Manufacturer information

Central Aluminum Company, LLC.

2045 Broehm Road

Obetz, OH 43207 US

614-491-5700

2. Hazards Identification

Emergency overview 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):

- 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.

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.

Eyes Dust and fumes from processing: Can cause irritation.

Skin Dust and fumes from processing: Can cause irritation.

Inhalation 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 (methemaglobin) 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 a alloying element in the aluminum recycling stream. This beryllium does not present an 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.

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/m³ Action Level (as Cr.); 5 µg/m³ TWA (as Cr, Cancer hazard - See 29 CFR 1910.1026)

ACGIH

Occupational exposure limits

Components Type Value Form

Aluminum (7429-90-5) TWA (respirable 1 mg/m³ (respirable fraction)fraction)

Chromium (7440-47-3) TWA 0.5 mg/m³

Components Type Value Form

Manganese (7439-96-5) TWA 0.2 mg/m³

Compounds Formed During Processing Type Value Form

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

5 mg/m³ (sampled by method that does not collect vapor)

TWA

0.2 mg/m³ (inhalable fraction,

mineral oil used in metalworking)

TWA (inhalable fraction, miner

TWA (inhalable 5 mg/m³ fraction, pure,

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)

Compounds Formed During Processing Type Value Form

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)

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/m³ (8 Hour)

Chromium (VI) compounds (18540-29-9) TWA 0.25 ug/m³ (8 Hour)

Mineral oil (8012-95-1) TWA 0.5 mg/m³ (8 Hour)

Personal protective equipment

Eye / face protection Wear safety glasses with side shields.

Skin protection Wear impervious gloves to avoid repeated or prolonged skin contact with residual oils and to avoid any skin injury.

Respiratory protection 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

Form Solid.

Appearance Silvery

Boiling point Not applicable

Melting point 1025 - 1210 °F (551.7 - 654.4 °C)

Flash point Not applicable

Auto-ignition temperature Not applicable

Flammability limits in air, lower, % by volume Not applicable

Flammability limits in air, upper, % by volume Not applicable

Vapor pressure Not applicable

Vapor density Not applicable

Solubility (water) None

Density 2.69 - 2.7 g/cm³ (0.097 - 0.098 lb/in³) **pH** Not applicable

Odor Odorless.

Partition coefficient (n-octanol/water) Not applicable

10. Chemical Stability & Reactivity Information

Chemical stability Stable under normal conditions of use, storage, and transportation as shipped.

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 NO₂): 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 (NO₂): 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/m³/4H

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

Compounds Formed During Processing

ACGIH - Threshold Limit Values - Carcinogens

Aluminum oxide (non-fibrous) (1344-28-1) A4 - Not Classifiable as a Human Carcinogen

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)

NTP (National Toxicology Program) - Report on Carcinogens - Known Human Carcinogens

Chromium (VI) compounds (18540-29-9) Known Human Carcinogen

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

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:

UN number -Proper shipping name Not regulated

Hazard class -

Packing group -

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

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

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 Yes (PICCS)
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 policy. Change(s) in Section: 1, 3, 4, 5, 7, 8, 11 and 15.

July 25, 2002: New format.

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.
- Aluminum Association, "Guidelines for Handling Molten Aluminum, The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, 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.

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

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

Skin contact

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.

Inhalation

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

Eye contact

FIRE FIGHTING

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

Suitable 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.

Extinguishing media which must not be used for safety reasons

SPILL PROCEDURES

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.

Spill or leak procedure

HANDLING AND STORAGE

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

Handling

Storage Keep material dry.

Emergency Phone: (614) 491-5700.

Contains:

Aluminum 7429-90-5

Zinc 7440-66-6

Manganese 7439-96-5

Magnesium 7439-95-4

Chromium 7440-47-3

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