Sicherheitsdatenblatt

Produktname: ALUMINIUMLEGIERUNGEN MIT BLEI

ÿÿÿ Abschnitt 1 - Chemische Produkte und Com * * *

Chemische Formel: Mischung.

Produktverwendung: Schneckenmaschinenmaterial und Extrusionen.

Andere Bezeichnungen: Legierungen 2011, 6262, C40A, C06N, C278, FJ62, Variante von 2011

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Notfallinformationen: USA: Chemtrec: 1-800-424-9300 oder 1-703-527-3887 Alcoa: 1-412-553-4001 Website: Ein aktuelles Sicherheitsdatenblatt finden Sie auf den Alcoa-Websites: www.alcoa.com oder intern unter my.alcoa.com EHS Community

* * * Abschnitt 2 – Gefahrenidentifizierung * * *

NOTFALLÜBERSICHT Fest.

Silberfarben. Geruchlos. Im Lieferzustand nicht brennbar. Kleine Späne, feine Drehspäne und Staub aus der Verarbeitung können leicht entzündlich sein.

Explosions-/Brandgefahr kann bestehen, wenn (weitere Informationen finden Sie in den Abschnitten 5, 7 und 10)

- Staub oder Feinstaub werden in die Luft gewirbelt.
- Späne, Staub oder Feinteile kommen mit Wasser in Berührung.
- Staub oder Feinstaub kommen mit bestimmten Metalloxiden (z. B. Rost) in Kontakt.

* Geschmolzenes Metall kommt mit Wasser/Feuchtigkeit oder bestimmten Metalloxiden (z. B. Rost) in Kontakt.

Staub und Rauch aus der Verarbeitung können Reizungen der Augen, der Haut und der oberen Atemwege sowie Metalldampffieber verursachen

MÖGLICHE GESUNDHEITLICHE

AUSWIRKUNGEN Die folgenden Aussagen fassen die im Allgemeinen zu erwartenden gesundheitlichen Auswirkungen bei Überexposition zusammen. Anwenderspezifische Situationen sollten von einer qualifizierten Person beurteilt werden. Weitere Gesundheitsinformationen finden Sie in Abschnitt 11.

Die unten aufgeführten gesundheitlichen Auswirkungen treten wahrscheinlich nicht auf, es sei denn, bei der Verarbeitung dieses Produkts entstehen Staub oder Dämpfe.

Augen:

Staub oder Rauch aus der Verarbeitung: Kann Reizungen verursachen.

Hautkontakt mit Ölrückständen/Ölbeschichtungen: Kann Reizungen verursachen. Längerer oder wiederholter Hautkontakt kann Dermatitis verursachen. Verarbeitungsstaub oder -dämpfe: Können Reizungen verursachen.

Einatmen

Gesundheitliche Auswirkungen durch mechanische Verarbeitung, z. B. Schneiden von Rinde: Kann Reizungen der Atemwege verursachen.

Chronische Überexposition: Kann zu einer Verringerung der Anzahl roter Blutkörperchen (Anämie), Hautanomalien (Pigmentveränderungen) und Fortpflanzungsschäden führen.

Zusätzliche gesundheitliche Auswirkungen erhöhter Temperaturen: Akute Überexposition: Kann Übelkeit, Fieber, Schüttelfrost, Kurzatmigkeit und Unwohlsein (Metalldampffieber), Flüssigkeitsansammlung in der Lunge (Lungenödem) und verringerte Fähigkeit des Blutes, Sauerstoff zu transportieren (Methämoglobin) verursachen. Chronische Überexposition: Kann zu Atemwegssensibilisierung, Vernarbung der Lunge (Lungenfibrose) und Lungenkrebs führen.

Karzinogenität und Fortpflanzungsgefährdung. Produkt im Lieferzustand: Stellt keine Krebs- oder Fortpflanzungsgefährdung dar.

Staub und Dämpfe aus der mechanischen Bearbeitung: Kann eine Krebsgefahr darstellen (Blei). Kann eine „eproduktive Gefahr (Blei, Mangan).

Staub und Rauch aus Schweiß- oder Hochtemperaturprozessen: Kann krebserregend sein (sechswertiges Chrom, Bleiverbindungen, Schweißrauch). Kann die Fortpflanzung gefährden (Blei, Mangan).

Verschlimmerung medizinischer Beschwerden durch Kontakt mit Produkten, Komponenten oder Verbindungen, die während der Verarbeitung entstehen

Staub oder Rauch aus der Verarbeitung: Asthma, chronische Lungenerkrankung, Hautausschlag und sekundäre Parkinson-Krankheit

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

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

CAS #	Component	Percent
7429-90-5	Aluminum	>83
7440-21-3	Silicon	<12.6
7440-50-8	Copper	<6.1
7439-95-4	Magnesium	<1.4
7439-89-6	Iron	<1.1
7439-92-1	Lead	<0.8
7439-96-5	Manganese	<0.4
7440-47-3	Chromium	<0.4

Component Information

Additional compounds which may be formed during processing are listed in Section 8.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

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

First Aid: Skin

Dust or fume from processing or contact with lubricant/residual oil: Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists.

First Aid: Inhalation

Dust or fume from processing: Remove to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration. Consult a physician.

* * * Section 5 - Fire Fighting Measures * * *

Flammable/Combustible Properties

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

Fire/Explosion

May be a potential hazard under the following conditions:

* Dust or fines dispersed in the air can 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, dust or fines in contact with water can generate flammable/explosive hydrogen gas. Hydrogen gas could present an explosion hazard in confined or poorly ventilated spaces.

* Dust or fines in contact with certain metal oxides (e.g., rust). A thermite reaction, with considerable heat generation, can be initiated by a weak ignition source.

* Molten metal in contact with water/moisture or other metal oxides (e.g., rust, copper oxide). Moisture entrapped by molten metal can be explosive. Contact of molten aluminum with other 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

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

Unsuitable Extinguishing Media

DO NOT USE:

* Halogenated agents on small chips, dusts or fines.

* Water around molten metal.

These agents will react with the burning material.

Fire Fighting Equipment/Instructions

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

* * * Section 6 - Accidental Release Measures * * *

Small/Large Spill

If molten: Contain the flow using dry sand or salt flux as a dam. Do not use shovels or hand tools to halt the flow of molten metal. Allow the spill to cool before remelting as scrap.

* * * Section 7 - Handling and Storage * * *

Handling/Storage

Product should be kept dry. Avoid contact with sharp edges or heated metal. Hot and cold aluminum are not visually different. Hot aluminum does not necessarily glow red.

Requirements for Processes Which Generate Dusts or Fines

If processing of these products includes operations where dust or 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. Cover and reseal partially empty containers. Use non-sparking handling equipment. Provide grounding and bonding where necessary to prevent accumulation of static charges during 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. 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 chips, 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 and/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 (e.g., 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 or heavy items such as ingot 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 internal metal temperature of the coldest item of the batch to 400°F and then hold at that temperature for 6 hours.

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

Engineering Controls

If dust or fumes are generated through processing: Use with adequate explosion-proof ventilation to meet the limits listed in Section 8, Exposure Guidelines.

Personal Protective Equipment

Respiratory Protection

If dust or fumes are generated through 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, Exposure Guidelines. Suggested respiratory protection: P100 (lead).

Eye Protection

Wear safety glasses/goggles to avoid eye injury.

Skin Protection

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

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).

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.

Exposure Guidelines

A: General Product Information

Alcoa recommends an Occupational Exposure Limit for **Chromium (VI) Compounds [both soluble and insoluble forms]** of 0.25 ug/m3 TWA as chromium.
Alcoa recommends an Occupational Exposure Limit for **Oil Mist** of 0.5 mg/m3 TWA.
Alcoa recommends Occupational Exposure Limits for **Manganese** of 0.05 mg/m3 TWA (total particulate) and 0.02 mg/m3 TWA (respirable fraction).
Sampling to establish **lead** exposures is advised where exposures to airborne particulate or fumes are possible. Consult OSHA Lead Standard 29 CFR 1910.1025 for specific health/industrial hygiene precautions and requirements to follow when handling lead compounds.

B: Component Exposure Limits

Aluminum (7429-90-5)

ACGIH	10 mg/m3 TWA (metal dust)
OSHA	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Silicon (7440-21-3)

OSHA	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Copper (7440-50-8)

ACGIH	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist, as Cu)
OSHA	0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)

Lead (7439-92-1)

ACGIH	0.05 mg/m3 TWA
OSHA	50 µg/m3 TWA (as Pb); 30 µg/m3 Action Level (as Pb. Poison - see 29 CFR 1910.1025)

Manganese (7439-96-5)

ACGIH	0.2 mg/m3 TWA
OSHA	5 mg/m3 Ceiling (fume)

Chromium (7440-47-3)

ACGIH	0.5 mg/m3 TWA
OSHA	1 mg/m3 TWA

C: Exposure Limits for Additional Compounds Which May Be Formed During Processing

Alumina (non-fibrous) (1344-28-1)
ACGIH 10 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica)
OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Silicon dioxide, amorphous (69012-64-2)
OSHA (80)/(% SiO2) mg/m3 TWA

Magnesium oxide (1309-48-4)
ACGIH 10 mg/m3 TWA (inhalable fraction)
OSHA 15 mg/m3 TWA (total particulate)

Iron oxide (1309-37-1)
ACGIH 5 mg/m3 TWA (respirable fraction)
OSHA 10 mg/m3 TWA

Lead, inorganic compounds (Not Available)
ACGIH 0.05 mg/m3 TWA (as Pb)
OSHA 50 µg/m3 TWA (as Pb); 30 µg/m3 Action Level (as Pb. Poison - see 29 CFR 1910.1025)

Manganese compounds, inorganic (Not Available)
ACGIH 0.2 mg/m3 TWA (as Mn)
OSHA 5 mg/m3 Ceiling (as Mn) (related to Manganese compounds)

Chromium (II) compounds (Not Available)
OSHA 0.5 mg/m3 TWA (as Cr)

Chromium (III) compounds (as Cr) (Not Available)
ACGIH 0.5 mg/m3 TWA (as Cr)
OSHA 0.5 mg/m3 TWA (as Cr)

Chromium (VI) compounds- water soluble (Not Available)
ACGIH 0.05 mg/m3 TWA (as Cr)

Chromium (VI) compounds (certain water insoluble forms) (Not Available)
ACGIH 0.01 mg/m3 TWA (as Cr)

Chromium (VI) (18540-29-9)
OSHA 2.5 µg/m3 Action Level; 5 µg/m3 TWA (Cancer hazard - See 29 CFR 1910.1026)

Oil mist, mineral (8012-95-1)
ACGIH 5 mg/m3 TWA (sampled by method that does not collect vapor)
ACGIH 10 mg/m3 STEL
OSHA 5 mg/m3 TWA

Ozone (10028-15-6)
ACGIH 0.05 ppm TWA (heavy work); 0.08 ppm TWA (moderate work); 0.10 ppm TWA (light work); 0.20 ppm TWA (heavy, moderate or light workloads, <=2 hours)
OSHA 0.1 ppm TWA; 0.2 mg/m3 TWA

Nitrogen dioxide (10102-44-0)
ACGIH 3 ppm TWA
ACGIH 5 ppm STEL
OSHA 5 ppm Ceiling; 9 mg/m3 Ceiling

Nitric oxide (10102-43-9)
ACGIH 25 ppm TWA
OSHA 25 ppm TWA; 30 mg/m3 TWA

* * * Section 9 - Physical & Chemical Properties * * *

Physical State:	Solid	**Appearance:**	Silvery
Boiling Point:	Not applicable	**Melting Point:**	1005 - 1205 °F (541- 652 °C)
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Solubility in Water:	None	**Specific Gravity:**	2.72 - 3.13 g/cm3 (0.098 - 0.113 lb/in3)
pH Level:	Not applicable	**Odor:**	None
Odor Threshold:	Not applicable	**Octanol-Water Coefficient:**	Not applicable

* * * Section 10 - Chemical Stability & Reactivity Information * * *

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) particularly 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 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:** An explosive reaction forming hydrogen gas occurs when heated above 1470°F (800°C).
Thermite explosions have been reported when aluminum alloys were melted in furnaces used for alloying with lead, bismuth or other metals with low melting temperatures. These metals, when added as high purity ingots, can seep through cracks in furnace liners and become oxidized. During subsequent melts in the furnace, molten aluminum can contact these metal oxides resulting in a thermite explosion.

* * * Section 11 - Toxicological Information * * *

Health Effects Associated with Individual Ingredients

Lead dust or fume Can cause irritation of eyes and upper respiratory tract. Acute overexposures: Can cause nausea and muscle cramps. Chronic overexposures: Can cause weakness in the extremities (peripheral neuropathy), abdominal cramps and other gastrointestinal tract effects, kidney damage, liver damage, central nervous system damage, damage to blood forming organs, blood cell damage and reproductive harm. Can cause reduced fertility and fetal toxicity in pregnant women. IARC/NTP: Listed as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as possibly carcinogenic to humans by IARC (Group 2B)*.

Chromium dust and mist Can cause irritation of eyes, skin and respiratory tract. **Chromium and trivalent chromium** IARC/NTP: Not classified by IARC.

Copper dust and mists Can cause irritation of eyes, mucous membranes, skin and respiratory tract. Chronic overexposures: Can cause reduction in the number of red blood cells (anemia), skin abnormalities (pigmentation changes) and hair discoloration.

Silicon, inert dusts Chronic overexposures: Can cause chronic bronchitis and narrowing of the airways.

Aluminum dust, fines and fumes Low health risk by inhalation. Generally considered to be biologically inert (milling, cutting, grinding).

Some products are supplied with a lubricant/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 Individual Compounds Formed During Processing

(The following could be expected if welded, remelted or otherwise processed at elevated temperatures.)
Certain inorganic lead compounds: IARC/NTP: Listed as "reasonably anticipated to be a human carcinogen" by the NTP. Listed as probably carcinogenic to humans by IARC (Group 2A)*.

Hexavalent chromium (Chrome VI) Can cause irritation of eyes, 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)*.

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

Iron oxide Chronic overexposures: Can cause benign lung disease (siderosis). Ingestion: Can cause irritation of gastrointestinal tract, bleeding, changes in the pH of the body fluids (metabolic acidosis) and liver damage.

Copper fume Can cause irritation of eyes, mucous membranes and respiratory tract. Acute overexposures: Can cause nausea, fever, chills, shortness of breath and malaise (metal fume fever).

Silica, amorphous Acute overexposures: Can cause dryness of eyes, nose and upper respiratory tract.

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

If the product is heated well above ambient temperatures or machined, oil vapor or mist may be generated. **Oil vapor and 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 with experimental animals by inhalation 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)*.

Plasma arc cutting can generate oxides of nitrogen. **Oxides of nitrogen (NO and NO_2)** Can cause irritation of eyes, skin and respiratory tract. Acute overexposures: Can cause reduced ability of the blood to carry oxygen (methemaglobin). Can cause cough, shortness of breath, the accumulation of fluid in the lungs (pulmonary edema) and death. Effects may be delayed up to 2-3 weeks. **Nitrogen dioxide (NO_2)** Chronic overexposures: Can cause scarring of the lungs (pulmonary fibrosis).

Acute Toxicity of Ingredients/Formed Compounds

A: General Product Information No information available for product.

B: Component Analysis - LD50/LC50

Silicon (7440-21-3)
Oral LD50 Rat: 3160 mg/kg
Magnesium (7439-95-4)
Oral LD50 Rat: 230 mg/kg
Iron (7439-89-6)
Oral LD50 Rat: 984 mg/kg
Manganese (7439-96-5)
Oral LD50 Rat: 9 g/kg

C: Formed Compound Toxicity - LD50s/LC50s

Alumina (non-fibrous) (1344-28-1)
Oral LD50 Rat: >5000 mg/kg
Silicon dioxide, amorphous (69012-64-2)
Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

Iron oxide (1309-37-1)
Oral LD50 Rat: >10000 mg/kg
Oil mist, mineral (8012-95-1)
Oral LD50 Mouse: 22 g/kg
Ozone (10028-15-6)
Inhalation LC50 Rat: 4800 ppb/4H
Nitrogen dioxide (10102-44-0)
Inhalation LC50 Rat: 88 ppm/4H
Nitric oxide (10102-43-9)
Inhalation LC50 Rat: 1068 mg/m3/4H

Carcinogenicity of Ingredients
A: Ingredient Carcinogenicity - IARC/NTP

Component	CAS	IARC 1	IARC 2A	IARC 2B	IARC 3	IARC 4	NTP K	NTP RA
Lead	7439-92-1	No	Yes	Yes	No	No	No	Yes
Chromium	7440-47-3	No	No	No	Yes	No	No	No

B: Ingredient Carcinogenicity - ACGIH
Lead (7439-92-1)
ACGIH A3 - Confirmed animal carcinogen with unknown relevance to humans
Chromium (7440-47-3)
ACGIH A4 - Not Classifiable as a Human Carcinogen
C: Ingredient References
Lead (7439-92-1)
IARC Monograph 87 [2006] (ionic lead generated from organic lead and present in the body)
IARC Supplement 7 [1987], Monograph 23 [1980] (evaluated as a group)
Chromium (7440-47-3)
IARC Monograph 49 [1990] (listed under Chromium and Chromium compounds), Supplement 7 [1987]

Carcinogenicity of Compounds Formed During Processing
A: Formed Compound Carcinogenicity - IARC/NTP

Component	CAS	IARC 1	IARC 2A	IARC 2B	IARC 3	IARC 4	NTP K	NTP RA
Silicon dioxide, amorphous	69012-64-2	No	No	No	Yes	No	No	No
Iron oxide	1309-37-1	No	No	No	Yes	No	No	No
Lead, inorganic compounds (related to Lead compounds)	Not Available	No	Yes	No	No	No	No	Yes
Chromium (III) compounds (as Cr)	Not Available	No	No	No	Yes	No	No	No
Chromium (VI) compounds (certain water insoluble forms) (related to Chromium (VI) (related to Chromium hexavalent compounds)	Not Available	Yes	No	No	No	No	Yes	No
Chromium (VI)	18540-29-9	Yes	No	No	No	No	No	No
Oil mist, mineral	8012-95-1	No	No	No	Yes	No	No	No
Welding fumes (NOC)	Not Available	No	No	Yes	No	No	No	No

B: Formed Compound Carcinogenicity - ACGIH
Alumina (non-fibrous) (1344-28-1)
ACGIH A4 - Not Classifiable as a Human Carcinogen
Magnesium oxide (1309-48-4)
ACGIH A4 - Not Classifiable as a Human Carcinogen
Iron oxide (1309-37-1)
ACGIH A4 - Not Classifiable as a Human Carcinogen
Lead, inorganic compounds (Not Available)
ACGIH A3 - Confirmed animal carcinogen with unknown relevance to humans

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

C: Formed Compound References

Silicon dioxide, amorphous (69012-64-2)
IARC Monograph 68 [1997], Supplement 7 [1987]
Iron oxide (1309-37-1)
IARC Supplement 7 [1987], Monograph 1 [1972]
Lead, inorganic compounds (Not Available)
IARC Monograph 87 [2006]
Chromium (III) compounds (as Cr) (Not Available)
IARC Monograph 49 [1990] (listed under Chromium and Chromium compounds), Supplement 7 [1987]
Chromium (VI) compounds (certain water insoluble forms) (Not Available)
IARC Monograph 49 [1990] (evaluated as a group) (related to Chromium (VI) compounds)
Chromium (VI) (18540-29-9)
IARC Monograph 49 [1990] (evaluated as a group)
Oil mist, mineral (8012-95-1)
IARC Supplement 7 [1987], Monograph 33 [1984]
Welding fumes (NOC) (Not Available)
IARC Monograph 49 [1990]

Descriptions of IARC and NTP Classifications

IARC 1: The agent is carcinogenic to humans. There is sufficient evidence that a causal relationship existed between exposure to the agent and human cancer.
IARC 2A: The agent is probably carcinogenic to humans. Generally includes agents for which there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.
IARC 2B: The agent is possibly carcinogenic to humans. Generally includes agents for which there is limited evidence in humans and less than sufficient evidence in experimental animals.
IARC 3: The agent is not classifiable as to its carcinogenicity to humans. Generally includes agents for which there is inadequate evidence in humans and inadequate or limited evidence in experimental animals.
IARC 4: The agent is probably not carcinogenic to humans. Generally includes agents for which there is evidence suggesting lack of carcinogenicity in humans and in experimental animals.
NTP K: Known to be a human carcinogen.
NTP RA: Reasonably anticipated to be a human carcinogen.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information available for product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Copper (7440-50-8)

96 Hr LC50 Pimephales promelas: 23 µg/L; 96 Hr LC50 Oncorhynchus mykiss: 13.8 µg/L; 96 Hr LC50 Lepomis macrochirus: 236 µg/L
72 Hr EC50 Scenedesmus subspicatus: 120 µg/L
96 Hr EC50 water flea: 10 µg/L; 96 Hr EC50 water flea: 200 µg/L

Iron (7439-89-6)
96 Hr LC50 Morone saxatilis: 13.6 mg/L [static]
Lead (7439-92-1)
96 Hr LC50 Pimephales promelas: 6.5 mg/L
48 Hr EC50 water flea: 600 µg/L

Environmental Fate

No information available for product.

* * * Section 13 - Disposal Considerations * * *

Disposal Instructions

Reuse or recycle material whenever possible. Keep scrap separate from other aluminum scrap.

US EPA Waste Number & Descriptions

A: General Product Information

RCRA Status: Not federally regulated in the U.S. if disposed of "as is." If reuse or recycle is not possible, then characterize in accordance with applicable regulations (40 CFR 261 or state equivalent in the U.S.) prior to disposal. TCLP testing is recommended for lead and chromium.

B: Component Waste Numbers

RCRA waste codes other than described under Section A may apply depending on use of product. Refer to 40 CFR 261 or state equivalent in the U.S.

* * * Section 14 - Transportation Information * * *

Special Transportation

	PSN #1	**PSN #2**	**PSN #3**	**PSN #4**
Notes:	(1)			
UN NA Number:	-			
Proper Shipping Name:	Not regulated			
Hazard Class:	-			
Packing Group:	-			
RQ:	-			
Other - Tech Name:	-			
Other - Marine Pollutant:	-			

Notes:

(1) When "Not regulated," enter the proper freight classification, "MSDS Number," and "Product Name" on the shipping paperwork.

Canadian TDG Hazard Class & PIN:	Not regulated

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

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 that 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.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Aluminum (7429-90-5)

SARA 313: 1.0 % de minimis concentration (dust or fume only)

Copper (7440-50-8)

SARA 313: 1.0 % de minimis concentration

CERCLA: 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)

Lead (7439-92-1)

SARA 313: 0.1 % Supplier notification limit; 0.1 % de minimis concentration (when contained in stainless steel, brass, or bronze)

CERCLA: 10 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); 4.54 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)

Chromium (7440-47-3)

CERCLA: 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 material is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)

SARA 311/312 Physical and Health Hazard Categories:

Immediate (acute) Health Hazard:	Yes, if particulates/fumes generated during processing.
Delayed (chronic) Health Hazard:	Yes, if particulates/fumes generated during processing.
Fire Hazard:	No
Sudden Release of Pressure:	No
Reactive:	Yes, if molten

State Regulations

A: General Product Information

PENNSYLVANIA "Special Hazardous Substance": Chromium compounds, hexavalent and Mineral oils.

Chemical(s) known to the State of California to cause cancer: Chromium (hexavalent compounds), Lead and lead compounds.

Chemical(s) known to the State of California to cause reproductive toxicity: Lead.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Aluminum	7429-90-5	Yes	No	Yes	Yes	Yes	Yes
Silicon	7440-21-3	No	No	Yes	Yes	Yes	Yes
Copper	7440-50-8	Yes	No	Yes	Yes	Yes	Yes
Magnesium	7439-95-4	Yes	No	Yes	No	Yes	Yes
Iron	7439-89-6	Yes	No	No	No	No	No
Lead	7439-92-1	Yes	No	Yes	Yes	Yes	Yes
Manganese	7439-96-5	Yes	No	Yes	Yes	Yes	Yes
Chromium	7440-47-3	Yes	No	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer. This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Other Regulations

A: General Product Information

Material meets the criteria for inclusion in WHMIS D2A

B: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Aluminum	7429-90-5	1 %
Copper	7440-50-8	1 %
Lead	7439-92-1	0.1 %
Chromium	7440-47-3	0.1 %

C: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS	AUST.	MITI
Aluminum	7429-90-5	Yes	Yes	Yes	Yes	No
Silicon	7440-21-3	Yes	Yes	Yes	Yes	No
Copper	7440-50-8	Yes	Yes	Yes	Yes	No
Magnesium	7439-95-4	Yes	Yes	Yes	Yes	No
Iron	7439-89-6	Yes	Yes	Yes	Yes	No
Lead	7439-92-1	Yes	Yes	Yes	Yes	Yes
Manganese	7439-96-5	Yes	Yes	Yes	Yes	No
Chromium	7440-47-3	Yes	Yes	Yes	Yes	No

Inventory information

MITI Inventory: Pure metals are not specifically listed by CAS or MITI number on the MITI Inventory. However, the class of compounds for each of these metals is listed.

* * * Section 16 - Other Information * * *

MSDS History

Original: March 4, 1985
Supersedes: February 6, 2007
Revised: June 15, 2007

MSDS Status

06/15/07: Changes in classification on European versions only.
02/06/2007: Reviewed on a periodic basis in accordance with Alcoa policy.
Changes in Sections 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14 & 15.
07/08/2005: Reviewed on a periodic basis in accordance with Alcoa policy.
Changes in Sections 1, 2, 3, 5, 8 and 15.
05/24/2002: Changes in Sections 1, 2, and 8.

Prepared By

Hazardous Materials Control Committee.

MSDS System Number

214326

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-2007, 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, Expert Publishing, LLC.

Key-Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Service
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
EPA	Environmental Protection Act
IARC	International Agency for Research on Cancer
LC_{50}	Lethal concentration (50 percent kill)
LC_{Lo}	Lowest published lethal concentration
LD_{50}	Lethal dose (50 percent kill)
LD_{Lo}	Lowest published lethal dose
LFL	Lower Flammable Limit
MITI	Ministry of International Trade & Industry
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NORM	Naturally Occurring Radioactive Materials
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PIN	Product Identification Number
PSN	Proper Shipping Name
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
UFL	Upper Flammable Limit
WHMIS	Workplace Hazardous Materials Information System
atm	atmosphere
cm	centimeter
g, gm	gram
in	inch
kg	kilogram
lb	pound
m	meter
mg	milligram
ml, ML	milliliter
mm	millimeter
mppcf	million particles per cubic foot
n.o.s.	not otherwise specified
ppb	parts per billion
ppm	parts per million
psia	pounds per square inch absolute
u	micron
ug	microgram

INFORMATION HEREIN IS GIVEN IN GOOD FAITH AS AUTHORITATIVE AND VALID; HOWEVER, NO WARRANTY, EXPRESS OR IMPLIED, CAN BE MADE.

This is the end of MSDS # 390

ALUMINIUMLEGIERUNGEN MIT BLEI

EINE WARNUNG

Physikalische Gefahren: Im Lieferzustand nicht brennbar. Kleine Späne, feine Drehspäne und Staub können sich leicht entzünden. Explosionsgefahr besteht, wenn: (1) Staub **oder** Feinstaub in der Luft verteilt sind.

(2) Feinstaub, Staub oder geschmolzenes Aluminium mit bestimmten Metalloxiden in Berührung kommen (z. B. Rost) oder

(3) Späne, Feinanteile, Staub oder geschmolzenes Aluminium mit Wasser oder Feuchtigkeit in Berührung kommen.

Bei Kontakt mit Öl kann es zu Hautreizungen/Dermatitis kommen.

Gesundheitsgefahren: Bei Überexposition sind im Allgemeinen gesundheitliche Auswirkungen zu erwarten:

AUGEN: Staub oder Rauch aus der Verarbeitung können Reizungen verursachen.

HAUT: Kontakt mit Ölrückständen/Ölbeschichtungen: Kann Reizungen verursachen. Längerer oder wiederholter Hautkontakt kann Dermatitis verursachen. Staub oder Rauch aus der Verarbeitung: Kann Reizungen verursachen. EINATMEN: Gesundheitliche Auswirkungen durch mechanische Verarbeitung, z. B. Schneiden. p g (g , g, g Rindin: Kann verursachen Reizung der **Atemwege .** Chronische Überexposition: Kann zu einer Verringerung der Anzahl roter Blutkörperchen (Anämie), Hautveränderungen (Pigmentveränderungen) und Fortpflanzungsschäden führen. Zusätzliche gesundheitliche Auswirkungen durch erhöhte Temperaturen. Akute Überexposition: Kann Übelkeit, Fieber, Schüttelfrost, Kurzatmigkeit und Unwohlsein (Metalldampffieber), Flüssigkeitsansammlung in der Lunge (Lungenödem) und eine verringerte Fähigkeit des Blutes, Sauerstoff zu transportieren (Methämoglobin) verursachen. Chronische Überexposition: Kann zu Atemwegssensibilisierung, Vernarbung der Lunge (Lungenfibrose) und Lungenkrebs führen.

WARNUNG: Chrom (sechswertige Verbindungen), Blei und Bleiverbindungen sind im US-Bundesstaat Kalifornien als krebserregend bekannt. Blei ist bekanntermaßen reproduktionstoxisch (Proposition 65).

Vorsichtsmaßnahmen: Staubbildung vermeiden. Produkt trocken halten. Unter ausreichender explosionsgeschützter Belüftung verwenden. Schutzbrille und Handschuhe tragen, um Augen- und Hautverletzungen zu vermeiden. Bei Konzentrationen über den zulässigen Grenzwerten Atemschutz (P100) tragen. Gute Hygienemaßnahmen zum Schutz vor versehentlicher Einnahme beachten.

Erste Hilfe (Staub oder Rauch aus der Verarbeitung): AUGEN: Augen mindestens 15 Minuten lang mit reichlich Wasser oder Kochsalzlösung spülen. Arzt konsultieren. HAUT: Haut mindestens 15 Minuten lang mit Wasser und Seife waschen. Bei anhaltender Reizung Arzt konsultieren. EINATMEN: An die frische Luft bringen. Bei Bewusstlosigkeit oder schweren Verletzungen auf freie Atemwege, Atmung und Puls prüfen. Bei fehlendem Puls oder fehlender Atmung Wiederbelebung durchführen . Arzt konsultieren.

Brandschutz: Bei Staub, Feinstaub oder geschmolzenem Metall Löschmittel der Klasse D verwenden. Späne und Späne mit grobem Wassersprühstrahl behandeln. NICHT VERWENDEN: Halogenierte Löschmittel bei kleinen Spänen, Staub oder Feinstaub, Wasser in der Nähe von geschmolzenem Metall. Diese Löschmittel reagieren mit dem brennenden Material.

Weitere Informationen zu Verwendung und Entsorgung finden Sie im Sicherheitsdatenblatt Nr. 390 von Alcoa.

USA-Notrufnummer: (412) 553-4001

ZUTATEN:	CAS-NUMMERN:	ZUTATEN:	CAS-NUMMERN:
Aluminium	(7 429-90-5)	Eisen	(7 439-89-6)
Silizium	(7440-21-3)	Führen	(7 439-92-1)
Kupfer	(7 440-50-8)	Mangan	(7 439-96-5)
Magnesium	(7439-95-4)	Chrom	(7440-47-3)