



# Material Safety Data Sheet

Product Name: REYNOBOND AND REYNOLITE ALUMINUM COMPOSITE MATERIAL  
WITH PAINT CONTAINING LEAD

ID: 1219

## \*\*\* Section 1 - Chemical Product and Company Identification \*\*\*

Chemical Formula: Mixture

Product Use: Architectural panels, specialty applications.

Alcoa Inc.  
201 Isabella Street  
Pittsburgh, PA 15212-5858

Phone: Health and Safety: 1-412-553-4649

Manufacturer/Supplier  
Alcoa Architectural Products  
1, rue du Ballon  
Merxheim, France 68500

Phone: + 00 33 (0)3 89 74 46 00

Reynolds Metals Company  
Alcoa Architectural Products  
50 Industrial Boulevard  
Eastman, GA 31023

Phone: 1-478-374-4746

Emergency Information: USA: Chemtrec: 1-800-424-9300 or 1-703-527-3887

Alcoa: 1-412-553-4001

Website: For a current MSDS, refer to Alcoa websites: [www.alcoa.com](http://www.alcoa.com) or Internally at [my.alcoa.com](http://my.alcoa.com) EHS Community

## \*\*\* Section 2 - Hazards Identification \*\*\*

### EMERGENCY OVERVIEW

Solid, panels. Various colors. 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 the air.

\* Chips, dust or fines are in contact with water.

\* Dust or fines are in contact with certain metal oxides (e.g. rust).

\* Molten metal is in contact with water/moisture or certain metal oxides (e.g. rust).

Dust and fume from processing can cause irritation of eyes, skin and upper respiratory tract. Contact with molten polymer can cause thermal burns. Combustion of the coatings can generate toxic and irritating gases.

### 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 following health effects are not likely to occur unless sawing or cutting generates dust or unless polymer is heated to melting.

Eyes: Dust or fume from processing: Can cause irritation.

Skin

Dust or fume from processing: Can cause irritation. Contact with molten polymer can cause thermal burns.

**Inhalation**

Health effects from mechanical processing (e.g., cutting, grinding): Can cause irritation of upper respiratory tract.

**Chronic overexposures**: Can cause respiratory sensitization, asthma, the accumulation of fluid in the lungs (pulmonary edema), scarring of the lungs (pulmonary fibrosis), lung cancer, kidney damage, secondary Parkinson's disease and reproductive harm.

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## Carcinogenicity and Reproductive Hazard

Product as shipped: Does not present any cancer or reproductive hazards.

Dust and fumes from mechanical processing: Can present a cancer hazard (nickel, hexavalent chromium compounds, lead, carbon black). Can present a reproductive hazard (lead, manganese).

## Medical Conditions Aggravated By Exposure to Product, Components or Compounds Formed During Processing

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

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

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

CAS #	Component	Percent
	<b>Aluminum Face Sheets</b>	-
7429-90-5	Aluminum	>92
7439-95-4	Magnesium	<5
7439-96-5	Manganese	<1.5
	<b>Polymeric Core</b>	-
Proprietary	Thermoplastic polymer	<60
Proprietary	Fire retardant	<25
Proprietary	Aramid polymer	<7
	<b>Coatings</b>	-
Not Available	Chromium compounds	5-10
Not Available	Nickel compounds	5-10
Not Available	Antimony compounds	2-10
7631-86-9	Silicon dioxide, amorphous	1-5
1333-86-4	Carbon black	1-5
Not Available	Cobalt compounds	1-5
Not Available	Copper compounds	1-5
13463-67-7	Titanium dioxide	<2
Not Available	Lead compounds including lead chromate	0-1

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

#### First Aid: Eyes

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

#### First Aid: Skin

Dust from processing: Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists.

Molten polymer: If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel material from skin. Get medical treatment for thermal burns.

#### First Aid: Inhalation

Dust 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.
- \* 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.



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\* 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

Collect scrap for recycling. *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 aluminum. Allow the spill to cool before remelting as scrap.

## \*\*\* Section 7 - Handling and Storage \*\*\*

### Handling/Storage

Avoid generating dust. Avoid contact with sharp edges or heated material. 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 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.



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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 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 is 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 is 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: N100.

#### Eye Protection

Wear safety glasses/goggles to avoid eye injury.

#### Skin Protection

Wear appropriate gloves to avoid any skin injury.

#### General

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.

Personnel who handle and work with molten polymer 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).

### 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/m<sup>3</sup> TWA as chromium.

Alcoa recommends Occupational Exposure Limits for **Manganese** of 0.05 mg/m<sup>3</sup> TWA (total particulate) and 0.02 mg/m<sup>3</sup> TWA (respirable fraction).

Alcoa recommends an Occupational Exposure Limit for **Nickel Compounds** of 0.1 mg/m<sup>3</sup> TWA.

Alcoa recommends an Occupational Exposure Limit for **Cobalt** of 0.02 mg/m<sup>3</sup> TWA.

#### B: Component Exposure Limits

##### Aluminum (7429-90-5)

ACGIH 10 mg/m<sup>3</sup> TWA (metal dust)

OSHA 15 mg/m<sup>3</sup> TWA (total dust); 5 mg/m<sup>3</sup> TWA (respirable fraction)

##### Manganese (7439-96-5)

ACGIH 0.2 mg/m<sup>3</sup> TWA

OSHA 5 mg/m<sup>3</sup> Ceiling (fume)

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### Chromium compounds (Not Available)

ACGIH 0.01 mg/m<sup>3</sup> TWA (as Cr) (related to Chromium (VI) compounds, insoluble)  
0.05 mg/m<sup>3</sup> TWA (as Cr)  
OSHA 0.1 mg/m<sup>3</sup> Ceiling (as CrO<sub>3</sub>, applies to any operations or sectors for which the Hexavalent Chromium standard [29 CFR 1910.1026] is stayed or is otherwise not in effect)

### Nickel compounds (Not Available)

ACGIH 0.2 mg/m<sup>3</sup> TWA (inhalable fraction, as Ni)  
OSHA 1 mg/m<sup>3</sup> TWA (as Ni)

### Silicon dioxide, amorphous (7631-86-9)

OSHA 20 mppcf TWA; ((80))/(% SiO<sub>2</sub>) mg/m<sup>3</sup> TWA)

### Carbon black (1333-86-4)

ACGIH 3.5 mg/m<sup>3</sup> TWA  
OSHA 3.5 mg/m<sup>3</sup> TWA

### Cobalt compounds (Not Available)

ACGIH 0.02 mg/m<sup>3</sup> TWA (as Co) (related to Cobalt, inorganic compounds)

### Titanium dioxide (13463-67-7)

ACGIH 10 mg/m<sup>3</sup> TWA  
OSHA 15 mg/m<sup>3</sup> TWA (total dust)

### Lead compounds including lead chromate (Not Available)

ACGIH 0.05 mg/m<sup>3</sup> TWA  
OSHA 50 µg/m<sup>3</sup> TWA (as Pb); 30 µg/m<sup>3</sup> Action Level (as Pb, Poison - see 29 CFR 1910.1025)

### Antimony compounds (Not Available)

ACGIH 0.5 mg/m<sup>3</sup> TWA  
OSHA 0.5 mg/m<sup>3</sup> TWA

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

<b>Physical State:</b> Solid panels	<b>Appearance:</b> Various colors
<b>Boiling Point:</b> Not applicable	<b>Melting Point:</b> Aluminum: 896-1220°F (480-660°C); Polymer ~220°F (~104°C)
<b>Vapor Pressure:</b> Not applicable	<b>Vapor Density:</b> Not applicable
<b>Solubility in Water:</b> None	<b>Specific Gravity:</b> See Density
<b>Density:</b> Range: generally 1.10-2.27 g/cm <sup>3</sup> (0.040-0.075 lb/in <sup>3</sup> )	<b>pH Level:</b> Not applicable
<b>Odor:</b> Odorless	<b>Odor Threshold:</b> Not applicable
<b>Octanol-Water Coefficient:</b> 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.



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- \* **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).

### Hazardous Decomposition

Combustion of the coatings can generate carbon monoxide, carbon dioxide, aldehydes, metal oxides (of lead, copper, cobalt and antimony) and oxides of nitrogen.

## \*\*\* Section 11 - Toxicological Information \*\*\*

### Health Effects Associated with Individual Ingredients

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

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

**Titanium dioxide** Can cause irritation of eyes and respiratory tract. Chronic overexposures: Can cause chronic bronchitis. IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B)\*.

Considering the physical and chemical properties of **aramid aluminum laminates** and the fact that kevlar aramid fiber products in normal use represent minimal risk to human health, health hazards from fiber exposures secondary to handling aramid laminates is not expected to pose a significant risk to users.

**Cobalt compounds** Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause allergic reactions. Acute and chronic overexposures: Can cause respiratory sensitization, asthma, kidney damage and damage to the heart muscle (cardiomyopathy).

**Antimony compounds** Can cause irritation of eyes, skin and mucous membranes. Chronic overexposures: Can cause dermatitis, perforation of the nasal septum, weight loss, hair loss, chemical pneumonia, liver damage and kidney damage. Ingestion: Can cause abdominal cramps, diarrhea, dizziness, abnormal heart rhythm (arrhythmia) and death.

**Copper compounds** 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.

**Nickel compounds** Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause sensitization and allergic contact dermatitis. Chronic overexposures: Can cause perforation of the nasal septum, inflammation of the nasal passages (sinusitis), respiratory sensitization and asthma. Associated with lung cancer, cancer of the vocal cords and nasal cancer. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)\*.

**Chromium (III) compounds** Can cause irritation of eyes, skin and respiratory tract. IARC/NTP: Not classifiable as to their carcinogenicity to humans by IARC.

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**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)\*.

**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)\*. **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)\*.

**Carbon black** Can cause mechanical irritation of eyes, skin and upper respiratory tract. Chronic overexposures: Can cause chronic bronchitis and lung disease. IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B)\*. Additional information: Studies with experimental animals (rats) by inhalation have found lung tumors and skin tumors.

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

### Health Effects Associated with Individual Compounds Formed During Processing

No new/additional compounds are expected to be formed during processing.

### Acute Toxicity of Ingredients/Formed Compounds

#### A: General Product Information

No information available for product.

#### B: Component Analysis - LD50/LC50

**Magnesium (7439-95-4)**

Oral LD50 Rat: 230 mg/kg

**Manganese (7439-96-5)**

Oral LD50 Rat: 9 g/kg

**Thermoplastic polymer (Proprietary)**

Inhalation LC50 Mouse: 12 g/m<sup>3</sup>/30M

**Fire retardant (Proprietary)**

Oral LD50 Rat: >5000 mg/kg

**Silicon dioxide, amorphous (7631-86-9)**

Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

**Carbon black (1333-86-4)**

Oral LD50 Rat: >15400 mg/kg; Dermal LD50 Rabbit: >3 g/kg

**Cobalt compounds (Not Available)**

Oral LD50 Rat: >3000 mg/kg

**Titanium dioxide (13463-67-7)**

Oral LD50 Rat: >10000 mg/kg

**Lead compounds including lead chromate (Not Available)**

Oral LD50 Rat: >5000 mg/kg

**Antimony compounds (Not Available)**

Oral LD50 Rat: >10000 mg/kg

#### C: Formed Compound Toxicity - LD50s/LC50s

This material has no components listed.



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### Carcinogenicity of Ingredients

#### A: Ingredient Carcinogenicity - IARC/NTP

Component	CAS	IARC 1	IARC 2A	IARC 2B	IARC 3	IARC 4	NTP K	NTP RA
Thermoplastic polymer	Proprietary	No	No	No	Yes	No	No	No
Aramid polymer	Proprietary	No	No	No	Yes	No	No	No
Chromium compounds (related to Chromium (III))	Not Available	No	No	No	Yes	No	No	No
Nickel compounds	Not Available	Yes	No	No	No	No	Yes	No
Silicon dioxide, amorphous	7631-86-9	No	No	No	Yes	No	No	No
Carbon black	1333-86-4	No	No	Yes	No	No	No	No
Titanium dioxide	13463-67-7	No	No	Yes	No	No	No	No
Lead compounds including lead chromate	Not Available	No	Yes	Yes	No	No	No	Yes

#### B: Ingredient Carcinogenicity - ACGIH

##### Chromium compounds (Not Available)

ACGIH A4 - Not Classifiable as a Human Carcinogen (related to Chromium (III) compounds)  
A1 - Confirmed Human Carcinogen (related to Chromium (VI) insoluble compounds)  
A1 - Confirmed Human Carcinogen

##### Nickel compounds (Not Available)

ACGIH A1 - Confirmed Human Carcinogen

##### Carbon black (1333-86-4)

ACGIH A4 - Not Classifiable as a Human Carcinogen

##### Cobalt compounds (Not Available)

ACGIH A3 - Confirmed animal carcinogen with unknown relevance to humans (related to Cobalt, inorganic compounds)

##### Titanium dioxide (13463-67-7)

ACGIH A4 - Not Classifiable as a Human Carcinogen

##### Lead compounds including lead chromate (Not Available)

ACGIH A3 - Confirmed animal carcinogen with unknown relevance to humans

#### C: Ingredient References

##### Thermoplastic polymer (Proprietary)

IARC Supplement 7 [1987], Monograph 19 [1979]

##### Aramid polymer (Proprietary)

IARC Monograph 68 [1997] (listed under para-Aramid fibrils)

##### Chromium compounds (Not Available)

IARC Monograph 49 [1990], Supplement 7 [1987], Monograph 23 [1980], Monograph 2 [1973]  
Monograph 49 [1990] (listed under Chromium and Chromium compounds),  
Supplement 7 [1987] (related to Chromium (III) Compounds)

##### Nickel compounds (Not Available)

IARC Monograph 49 [1990] (evaluated as a group)

##### Silicon dioxide, amorphous (7631-86-9)

IARC Monograph 68 [1997], Supplement 7 [1987]

##### Carbon black (1333-86-4)

IARC Monograph 93 posted, Monograph 65 [1996]

##### Titanium dioxide (13463-67-7)

IARC Monograph 93 posted, Monograph 47 [1989]

##### Lead compounds including lead chromate (Not Available)

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)



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### Carcinogenicity of Compounds Formed During Processing

#### A: General Product Information

No new/additional compounds are expected to be formed during processing.

#### 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

**Silicon dioxide, amorphous (7631-86-9)**

96 Hr LC50 Brachydanio rerio: 5000 mg/L [static]

72 Hr EC50 Selenastrum capricornutum: 440 mg/L

48 Hr EC50 Ceriodaphnia dubia: 7600 mg/L

**Carbon black (1333-86-4)**

24 Hr EC50 Daphnia magna: >5600 mg/L

**Cobalt compounds (Not Available)**

96 Hr LC50 Lepomis macrochirus: 752.4 mg/L [static]

30 min EC50 Pseudomonas putida: >10000 mg/L

24 Hr EC50 Daphnia magna Straus: >500 mg/L

**Lead compounds including lead chromate (Not Available)**

96 Hr LC50 Leuciscus idus: >10000 mg/L [static]

30 min EC50 Pseudomonas putida: >10000 mg/L

48 Hr EC50 water flea: 600 µg/L

**Antimony compounds (Not Available)**

96 Hr LC50 Leuciscus idus: >10000 mg/L [static]

#### Environmental Fate

No information available for product.

### \*\*\* Section 13 - Disposal Considerations \*\*\*

#### Disposal Instructions

Reuse or recycle material whenever possible.

#### US EPA Waste Number & Descriptions

##### A: General Product Information

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.

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### \*\*\* 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 Controlled Products Regulation PIN:	Not regulated
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### \*\*\* 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)

##### Manganese (7439-96-5)

SARA 313: 1.0 % de minimis concentration

##### Chromium compounds (Not Available)

SARA 313: 1.0 % de minimis concentration (except for chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the chromite ore processing residue (COPR). Chemical Category N090) (related to Chromium (III) Compounds)

##### Nickel compounds (Not Available)

SARA 313: 0.1 % de minimis concentration (Chemical Category N495)

##### Cobalt compounds (Not Available)

SARA 313: 0.1 % de minimis concentration (Chemical Category N096) (related to Cobalt, inorganic compounds)

##### Copper compounds (Not Available)

SARA 313: 1.0 % de minimis concentration (does not include copper phthalocyanine compounds substituted only with hydrogen and/or bromine and/or chlorine, Chemical Category N100) (related to Copper compounds)

##### Lead compounds including lead chromate (Not Available)

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)



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**Antimony compounds (Not Available)**

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 solid metal released is larger than 100 micrometes)

**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": Chromic acid, Chromium, Lead

Chemical(s) known to the State of California to cause cancer: Antimony oxide (Antimony trioxide); Chromium (hexavalent compounds); Cobalt (II) oxide; Lead compounds; Nickel compounds

**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
Magnesium	7439-95-4	Yes	No	Yes	No	Yes	Yes
Manganese	7439-96-5	Yes	No	Yes	Yes	Yes	Yes
Chromium compounds (*related to Chromium (III))	Not Available	No	No	Yes	Yes <sup>1</sup>	Yes	No
Nickel compounds	Not Available	Yes	No	No	Yes	Yes	Yes
Silicon dioxide, amorphous	7631-86-9	Yes	No	Yes	Yes	Yes	Yes
Carbon black	1333-86-4	Yes	No	Yes	Yes	Yes	Yes
Cobalt compounds (*related to Cobalt, inorganic compounds)	Not Available	No	No	No	Yes <sup>1</sup>	No	No
Copper compounds (*related to Copper compounds)	Not Available	Yes <sup>1</sup>	No	No	No	Yes <sup>1</sup>	Yes <sup>1</sup>
Titanium dioxide	13463-67-7	No	No	Yes	Yes	Yes	Yes
Lead compounds including lead chromate	Not Available	Yes	No	Yes	Yes	Yes	Yes
Antimony compounds	Not Available	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.

WARNING! 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 %
Manganese	7439-96-5	1 %
Chromium compounds	Not Available	1 %
Silicon dioxide, amorphous	7631-86-9	1 %
Carbon black	1333-86-4	1 %
Copper compounds	Not Available	1 % (related to Copper compounds, n.o.s.)
Lead compounds including lead chromate	Not Available	0.1 %
Antimony compounds	Not Available	1 %



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### C: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS	AUST.	MITI
Aluminum	7429-90-5	Yes	Yes	Yes	Yes	No
Magnesium	7439-95-4	Yes	Yes	Yes	Yes	No
Manganese	7439-96-5	Yes	Yes	Yes	Yes	No
Thermoplastic polymer	Proprietary	Yes	Yes	No	Yes	Yes
Fire retardant	Proprietary	Yes	Yes	Yes	Yes	Yes
Aramid polymer	Proprietary	Yes	Yes	No	No	Yes
Chromium compounds	Not Available	Yes	Yes	Yes	Yes	Yes
Nickel compounds	Not Available	Yes	Yes	Yes	Yes	Yes
Silicon dioxide, amorphous	7631-86-9	Yes	Yes	Yes	Yes	Yes
Carbon black	1333-86-4	Yes	Yes	Yes	Yes	Yes
Cobalt compounds	Not Available	Yes	Yes	Yes	Yes	Yes
Copper compounds	Not Available	Yes	Yes	Yes	Yes	No
Titanium dioxide	13463-67-7	Yes	Yes	Yes	Yes	Yes
Lead compounds including lead chromate	Not Available	Yes	Yes	Yes	Yes	Yes
Antimony compounds	Not Available	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: August 12, 2002  
Supersedes: April 4, 2006  
Revision: January 23, 2008

#### MSDS Status

01/23/2008: Changes in Sections 2, 3, 5, 7, 8, 9, 11, 13 & 14.  
04/04/2006: Change of aramide polymer to aramid polymer and change in Section 8.  
03/31/2006: Reviewed on a periodic basis in accordance with Alcoa policy.  
Changes made to sections 1, 2, 3, 4, 5, 7, 8, 10, 11, 12 and 15.  
08/12/2002: New MSDS. Replaces Reynolds Metals Company MSDSs 5303 and 5355.

#### Prepared By

Hazardous Materials Control Committee  
Preparer: Stephanie Williams, 412-553-1479/Jon N. Peace, 412-553-2293

#### MSDS System Number

163970

#### 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).



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- \* 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 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 <sub>50</sub>	Lethal concentration (50 percent kill)
LC <sub>50</sub>	Lowest published lethal concentration
LD <sub>50</sub>	Lethal dose (50 percent kill)
LD <sub>50</sub>	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 # 1219

# REYNOBOND AND REYNOLITE ALUMINUM COMPOSITE MATERIAL



## CAUTION

**Physical Hazards:** Non-combustible as supplied. Small chips, fine turnings and dust may ignite readily. Explosion potential may be present when: (1) dusts or fines are dispersed in the air, (2) fines, dust or molten aluminum are in contact with certain metal oxides (e.g. rust) or (3) chips, fines, dust or molten aluminum are in contact with water or moisture. Dust and fume from processing can cause irritation of the eyes, skin, and upper respiratory tract.

**Health Hazards:** Health effects generally expected in cases of overexposures:

**EYES:** Dust or fume from processing: Can cause irritation.

**SKIN:** Dust or fume from processing: Can cause irritation. Contact with molten polymer can cause thermal burns.

**INHALATION:** Health effects from mechanical processing (e.g., cutting, grinding): Can cause irritation of upper respiratory tract. **Chronic overexposures:** Can cause respiratory sensitization, asthma, the accumulation of fluid in the lungs (pulmonary edema), scarring of the lungs (pulmonary fibrosis), lung cancer, kidney damage, secondary Parkinson's disease and reproductive harm.

**Warning:** Antimony oxide (Antimony trioxide); Chromium (hexavalent compounds); Cobalt (II) oxide; Lead compounds; and Nickel compounds are chemicals known to the State of California to cause cancer. (Proposition 65).

**Precautions:** Avoid generating dust. Avoid contact with sharp edges or heated material. Use with adequate explosion-proof ventilation. Wear appropriate eye and skin protection to prevent injury. Use appropriate respiratory protection (N100) if exposures exceed the permissible limits.

**First Aid (Dust from processing):** **EYES:** Flush eyes with plenty of water or saline for at least 15 minutes. Consult a physician. **SKIN:** Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel material from skin. Get medical treatment for thermal burns. **INHALATION:** 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.

**Fire fighting:** Use Class D extinguishing agents on dusts or fines. Use coarse water spray on chips and turnings. Do NOT use halogenated agents on small chips, dusts or fines; water around molten metal. These agents will react with the burning material.

Read Alcoa Material Safety Data Sheet No. 1219 for more information about use and disposal.

Emergency Phone: (412) 553-4001.

INGREDIENTS:	CAS NUMBERS:	INGREDIENTS:	CAS NUMBERS:
Aluminum	(7429-90-5)	Fire retardant	(--)
Magnesium	(7439-95-4)	Aramid polymer	(--)
Manganese	(7439-96-5)	Coatings *	(--)
Thermoplastic polymer	(--)		

\*Include Silicon dioxide, amorphous, Carbon black, titanium dioxide and compounds of cobalt, antimony, nickel, chromium, lead and copper.

**Alcoa Inc.**

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