

Material Safety Data Sheet

I. Material Description

Company-	Issue Date- September 1998
	Revision Date- November 2007
Product Name- Aluminum Extrusions, Reveals, Channels, Moldings, Screeds, Trims	
Common Name- Aluminum Alloy	
Trade Name- 6XXX Series Alloy	
Manufacturer's Code Identification- 6000, 6005, 6061, 6063, 6463	

II. Ingredients

Ingredients	Percent	OSHA PEL	ACGIH TWA	Cas Number	
Aluminum	Al	min. 93	5 mg/m ³	5 mg/m ³	7429-90-5
Beryllium	Be	max. 0.005	.002 mg/m ³	.002 mg/m ³	7440-41-7
Bismuth	Bi	max. 0.003	15 mg/m ³	10 mg/m ³	7440-69-9
Boron	B	max. 0.01	15 mg/m ³	10 mg/m ³	7440-42-8
Chromium	Cr	max. 0.35	1 mg/m ³	0.5 mg/m ³	7440-47-3
Copper	Cu	max. 1	1 mg/m ³	0.2 mg/m ³	7440-50-8
Gallium	Ga	max. 0.05			7440-55-3
Iron	Fe	max. 0.7	10 mg/m ³	5 mg/m ³	7439-89-6
Lead	Pb	max. 0.003	.05 mg/m ³	.05 mg/m ³	7439-92-1
Magnesium	Mg	max. 1.55	15 mg/m ³	10 mg/m ³	7439-95-4
Manganese	Mn	max. 0.85	5 mg/m ³	0.2 mg/m ³	7439-96-5
Nickel	Ni	max. 0.02	1 mg/m ³	1 mg/m ³	7440-02-0
Silicon	Si	max. 1.4	15 mg/m ³	10 mg/m ³	7440-21-3
Tin	Sn	max. 0.01	2 mg/m ³	2 mg/m ³	7440-31-5
Titanium	Ti	max. 0.15	15 mg/m ³	10 mg/m ³	7440-32-6
Vanadium	V	max. 0.16	.05 mg/m ³	.05 mg/m ³	7440-62-2
Zinc	Zn	max. 0.25	5 mg/m ³	5 mg/m ³	7440-66-6

III. Physical Data

Appearance-	Silvery Metallic	Physical Form-	Solid
Vapor Pressure-	N/A	Evaporation Rate-	N/A
Vapor Density-	N/A	Density-	2.702
Boiling Temperature-	2057° C	Specific Gravity-	2.5-2.9
Melting Temperature-	359.7° C	Water Solubility-	NII
Solubility-	HCl, H2SO4 & Alkalies	pH-	N/A
Soluble in Water-	No	Odor-	None

IV. Stability and Reactivity

Stability-	Stable
Conditions to Avoid-	Molten aluminum may explode on contact with water. In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates, or ammonium nitrate. Aluminum particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat.
Hazardous Decomposition Products-	In the form of particles, aluminum reacts with halogenated acids, water, and sodium hydroxide, producing flammable hydrogen gas. Hazard polymerization will not occur.
Hazardous Polymerization-	N/A

V. Fire and Explosion Data

Fire Information-	Flashpoint- N/A Auto-ignition Temperature- N/A Flammability Limits in Air- N/A Flammable Properties- Not a fire hazard unless in particle form. Suspensions of aluminum dust in air may pose a severe explosion hazard. A potential explosion exists for a mixture of fine and coarse particles if at least 15% to 20% of the material is finer than 44 microns (buffing and polishing generate finer material than grinding, sawing, and cutting).
Fire Explosion Properties-	Molten aluminum may explode upon contact with water. Finely divided aluminum may explode when mixed with halogen acids, halogenated solvents, or ammonium nitrate. Finely divided aluminum reacts with halogen acids, water, and sodium hydroxide to produce hydrogen gas.

VI. Fire Fighting Measures

Extinguishing Media-	This product is non-flammable in solid form. For fires involving aluminum fines or chips, use dry sand or a Class D dry-powder extinguisher. DO NOT use water or halogenated extinguishing agents.
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VII. Exposure Controls, Personal Protective Equipment

Engineering Controls-	Local ventilation should be used to keep the exposure to fine particles and dusts below acceptable limits. Care should be taken to keep ducts and fans from collecting fine dust and particles that could cause a fire or explosion.
Personal Protective Equipment (PPE)-	Appropriate personal equipment is required when melting, casting, machining, welding, forging, or otherwise processing. The nature of the processing activity will determine what form of equipment is necessary; i.e. glasses, face shield, respirator, ear protection, and/or protective clothing.

VIII. Emergency Medical Procedures

Eyes-	Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician
Skin-	Remove particles by thoroughly washing with soap and water.
Inhalation-	In case of discomfort, remove to a ventilated area. If discomfort persists, consult a physician.
Ingestion-	Consult a physician immediately.

IX. Hazards Identification

Emergency Overview-	A silver colored solid with no distinctive odor that does not show physical change when heated until melting. Not hazardous. Not a fire hazard unless in particle form. Dust or powder in fine form may cause fire/explosion. In case of fire, do not use water or halogenated extinguishing agents.
Potential Health Effects-	
Eyes-	May irritate eyes when welding or plasma cutting. Irritation may occur if dust enters the eye.
Skin-	Not likely. No known hazard.
Inhalation-	Inhalation may occur when material is machined, welded, or remelted. Short term overexposure to welding fumes may result in discomfort such as dizziness, nausea, or throat and nose irritation or dryness. Inhalation of finely divided powder has been reported to cause pulmonary fibrosis.
Ingestion-	Not likely. No known hazard.
Chronic Effects-	Some aluminum alloys contain small amounts of carcinogenic materials. See Toxicological Information (Section XIII).

X. Environmental Impact

Spill or Leak Procedures-	N/A
Ecological Information-	Aluminum and its alloys under solid form, such as ingots or manufactured items, do not present any hazard for the environment.
Waste Disposal Methods-	Used or unused product should be tested to determine hazard status and disposal requirements under federal, state, or local laws and regulations. Dispose of waste in accordance with federal, state, or local regulations.
Recycling-	Aluminum in its solid form is recyclable. Aluminum in the form of particles may be reactive and its hazardous characteristics should be determined prior to disposal.

XI. Handling and Storage

Handling-

Because of the risk of explosion, aluminum ingots and metal scrap should be thoroughly dried prior to remelting. Hot aluminum does not present any color change. Do not touch heated aluminum product, without knowing metal temperature. If metal is hot and touched, burns can result. Pre-heating is advised before the material is remelted.

Storage-

Aluminum should be stored where it is kept dry and free of materials that may cause a reaction when the material is remelted.

For more information on the handling and storage of aluminum, consult the following documents published by Aluminum Association, 900 Nineteenth Street NW, Washington D.C., 2006:

"Guidelines for Handling Molten Aluminum"

"Recommendations for Storage and Handling of Aluminum Powders and Paste"

"Guidelines for Handling Aluminum Fines Generated During Various Aluminum Fabricating Operations"

XII. Transportation Information

Transport-

Aluminum powder must be packaged and shipped as a Flammable Solid. In solid form, this product is not classified as dangerous under the Transport Regulations, for road, sea, or air transport (no UN number).

WHMIS Classification (Canada)- D2 Material causing other toxic effects.

EEC Classification (Europe)-

Warning Symbol: Not Applicable

Warning Word: Not Applicable

Risk Phrases: Not Applicable

Safety Phrases: Not Applicable

USA Regulations- This product may contain trace amounts of lead (Pb). Any process resulting in exposure to more than 0.5 mg/m³ of metal dust per day may result in a daily dose of lead of over 0.5 ug/day, the dose which the "California Safe Drinking and Toxic Enforcement Act" of 1986 requires notification. Refer to the appropriate regulation notification wording guidelines. The dose is not considered dangerous for health according to current toxicology studies.

Some alloys contain small amounts of Beryllium, Chromium, and/or Nickel (see Section II). These metals are reportable on the EPA TSCA Inventory list.

XIII. Toxicological Information (Acute Effects)

Inhalation-

Aluminum and silicon dusts generated during use are considered nuisance particulates although inhalation of finely divided powder has been reported to cause pulmonary fibrosis.

Skin Contact-

Not a hazard under normal conditions. Skin contact with molten or hot metal can cause burns.

Eye Contact-

Aluminum dust can irritate (mechanical abrasion) the eyes.

Ingestion-

N/A

XIII. Toxicological Information (Acute Effects) Continued...

Medical Conditions aggravated by exposure to the product-

None known.

Carcinogenicity/Mutagenicity/Reproductive Toxicity-

Some alloys contain Beryllium. Beryllium is listed in the NTP Fifth Annual Report on Carcinogens. IARC Cancer Review: Group 2A IMEMDT 7,127,87; Human Limited Evidence IMEMDT 23,143, 80; Animal Sufficient Evidence IMEMDT 23,143,80; IMEMDT 1,17,72, Beryllium and its compounds are on the Community Right-to-Know list. Reported in EPA TSCA Inventory.

Some alloys contain Chromium. Chromium is listed in the NTP Fifth Annual Report on Carcinogens. IARC Cancer Review: Group 3 IMEMDT 7,165,87; Animal Inadequate Evidence IMEMDT 23,205,80. Chromium and its compounds are on the the Community Right-to-know list. Reported in EPA TSCA Inventory.

Some alloys contain Nickel. Nickel is listed in the NTP Fifth Annual Report on Carcinogens. IARC Cancer Review: Group 1 IMEMDT 7,264,87; Animal Sufficient Evidence IMEMDT 11,75,76; Animal Inadequate Evidence IMEMDT 2,126,73. Nickel and its compounds are on the Community Right-to-Know list. Reported in EPA TSCA Inventory.

XIV. Additional Information

Halogen acids and sodium hydroxide in contact with aluminum may generate explosive mixtures of hydrogen.

Finely divided aluminum will form explosive mixtures in air in the presence of bromates, iodates, or ammonium nitrate.

When remelting aluminum scrap, entrapped moisture or the presence of strong oxidizers such as nitrate could cause an explosion. For more information request copy of "Guidelines for Handling Molten Aluminum" from the Aluminum Association.

Do Not Touch heated aluminum product, without knowing metal temperature. Aluminum experiences no color change during heating. If metal is hot and touched, burns can result.

Aluminum powder must be packaged and shipped as a Flammable Solid.

The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone, nitrogen oxides, infra-red and ultra-red radiation.

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