

**MATERIAL SAFETY DATA SHEET**

BECK ALUMINUM RACINE

**ALUMINUM ALLOYS**

(F132, A132, E132, M132P, M132B, 333, 339P, 1275, 1295, 281.1, M126, MS7438, ADC12, 334.1)

Revised 7/15/11

**IDENTITY**

TRADE NAMES  
Aluminum Foundry Ingot

CHEMICAL NAME  
Mixed

FORMULA  
Aluminum Alloys

**SECTION I**

MANUFACTURER'S NAME  
**MET-AL, INC.**

EMERGENCY TELEPHONE NUMBERS  
(262) 637-9858 (800) 424- 9300 CHEMTREK

ADDRESS  
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Racine, WI 53403-3393

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**SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION**

MATERIAL	ELEMENT	PERCENT BY WEIGHT	CAS NUMBER	HUMAN CARCINOGEN	FORM	OSHA <sup>a</sup> 8-HR PEL mg/m <sup>3</sup>	OSHA 8-HR TWA (15-MIN STEL) mg/m <sup>3</sup>	ACGIH 8-HR TLV (15-MIN STEL) mg/m <sup>3</sup>
Aluminum	Al	Remainder	7429-90-5	NO	Dust	15 TD <sup>C</sup>	15 TD <sup>C</sup>	10
					Dust	5 RF <sup>D</sup>	5 RF <sup>D</sup>	----- <sup>B</sup>
					Fume	----- <sup>B</sup>	5	----- <sup>B</sup>
Boron	B	0.030 max	7440-42-5	NO	All	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>
Chromium	Cr	0.150 max	7440-47-3	YES <sup>A</sup>	All	1	1	0.5
Copper	Cu	0.200 - 3.500	7440-50-8	NO	Dust	1	1	1
					Fume	0.1	0.1	0.2
Iron	Fe	0.100 - 1.00	7439-89-6	NO	All	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>
Lead	Pb	0.10 max	7439-92-1	YES <sup>A</sup>	All	0.05 <sup>E</sup>	0.05 <sup>E</sup>	0.150 BEI
Magnesium	Mg	0.080 - 1.500	7439-95-4	NO	All	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>
Manganese	Mn	0.500 max	7439-96-5	NO	Dust	5 C <sup>E</sup>	5 C <sup>E</sup>	5
					Fume	5 C <sup>E</sup>	1	1
Nickel	Ni	2.800 max	7440-02-0	YES <sup>A</sup>	All	1	1	1
Phosphorus	P	0.020 max	7723-14-0	NO	All	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>
Silicon	Si	8.000 - 18.500	7440-21-3	NO	All	15 TD <sup>C</sup>	10 TD <sup>C</sup>	10
						5 RF <sup>D</sup>	5 RF <sup>D</sup>	----- <sup>B</sup>
Strontium	Sr	0.030 max	7440-24-6	NO	All	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>
Tin	Sn	0.060 max	7440-31-5	NO	All	----- <sup>B</sup>	----- <sup>B</sup>	2
Titanium	Ti	0.250 max	7440-32-6	NO	All	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>
Zinc	Zn	1.000 max	7440-66-6	NO	Dust	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>
					Fume	----- <sup>B</sup>	----- <sup>B</sup>	----- <sup>B</sup>

Notes:

<sup>A</sup> Identified as a potential human carcinogen

<sup>C</sup> TD = Total Dust

<sup>B</sup> For dusts without an explicit OSHA PEL, a nuisance dust PEL applies (15 mg/m<sup>3</sup> total dust, 5 mg/m<sup>3</sup> respirable dust.)

<sup>D</sup> RF = Respirable Fraction of Dust

<sup>E</sup> C = Ceiling Limit

**Section III - Physical/Chemical Characteristics**

BOILING POINT	3,733°F (2,056°C)	SPECIFIC GRAVITY (H <sub>2</sub> O = 1)	2.6 - 2.9
VAPOR PRESSURE	-0 mm Hg	MELTING POINT	1,050 - 1,220°F (566 - 660°C)
VAPOR DENSITY (Air = 1)	NA	EVAPORATION RATE (Butyl Acetate = 1)	NA
SOLUBILITY IN WATER (at 20°C)	Insoluble	APPEARANCE AND ODOR	Silvery Gray Color Odorless Solid

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**Section IV - Fire and Explosion Data**

FLASH POINT	FLAMMABLE LIMITS	LEL	UEL
Not Applicable	Nonflammable	Not Applicable	Not Applicable

In Solid Ingot Form there is no fire or explosion hazard.

**EXTINGUISHING MEDIA**

Aluminum alloys will not burn in the solid state. Like other metallic and organic dust and fine powder, aluminum alloy dust and powder may burn under some conditions. To extinguish, use Class D Agents (Lith X).

**SPECIAL FIRE FIGHTING PROCEDURES**

Confine metal powder dust fire, avoid spreading. Apply Class D (Lith X) powder in heavy quantities. DO NOT USE WATER OR MOIST SAND. Fire Fighters should wear self-contained breathing apparatus and protective clothing.

**UNUSUAL FIRE AND EXPLOSION HAZARDS**

Fire or explosion may occur when material is in the form of dust and exposed to heat or flames, chemical reaction or contact with powerful oxidizers. NEVER PUT WATER ON MOLTEN METAL - IT WILL EXPLODE.

**Section V - Reactivity Data**

STABILITY	Stable at room temperature.
INCOMPATIBILITY (MATERIALS TO AVOID)	NEVER PUT WATER ON MOLTEN METAL - IT WILL EXPLODE. Reaction with mineral acids, water-soluble cutting oils, dilute hydrochloric acid, sulfuric acid, potassium hydroxide or sodium hydroxide may liberate hydrogen. Avoid contact with acids, bases and oxidizing agents. For additional information consult Material Safety Data Sheets for component materials.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS	Evolved hydrogen in confined areas may be an explosive hazard (see directly above). Potentially hazardous oxides of metals may be produced when aluminum alloys are heated, welded or in molten state.
HAZARDOUS POLYMERIZATION	Will not occur.

**Section VI - Health Hazard Data**

ROUTES OF ENTRY:	Inhalation? Yes	Skin? Yes	Ingestion? No
HEALTH HAZARDS (ACUTE AND CHRONIC)	Aluminum and aluminum alloys are not generally regarded as industrial toxins. In normal use, few health hazards occur.		
	No health hazard or toxicity information exists specifically for this material. Data for major components are given instead. For each component in this material, the percent by weight can be used as a rough guide to the component's likely significance.		
Inhalation	Cutting, melting or welding may produce dusts or fumes containing the component elements and their oxides. Breathing these dust or fumes may present potentially significant health hazards. These may include mucous membrane irritation and lung changes in workers, potentially leading to pulmonary diseases.		
	Inhalation of finely divided <u>aluminum</u> powder may cause pulmonary fibrosis (aluminosis). Symptoms include anorexia, shortness of breath, dry cough, chest pain on respiration and epigastric abdominal pain.		
	Fumes of copper, magnesium, manganese and zinc oxide may cause metal fume fever with flu-like symptoms. Overexposure to manganese fumes may cause chronic manganese poisoning. Early symptoms include headaches, apathy, sleepiness, and weakness or cramps in the legs. Chronic overexposure may affect the central nervous system, ultimately leading to emotional disturbances, gait and balance difficulties, and paralysis.		
	Overexposure to tin dusts may cause irritation of the skin and mucous membranes, and may result in a benign pneumoconiosis (stannosis).		
	Chromium and nickel compounds have been associated with allergic reactions, rashes and Lung changes. Nickel is a respiratory irritant and may cause pneumonitis.		

**Section VI - Health Hazard Data (continued)**

Skin                                      Dusts or fumes containing component elements of aluminum alloys may cause skin or mouth irritation. Copper may cause skin and hair discoloration. Magnesium particles imbedded in the skin may cause sever lesions, with slow healing.

Eyes                                        Dusts or fumes containing component elements of aluminum alloys may cause eye irritation.

Ingestion                                 Ingestion of significant amounts of material is unlikely.

Unusual Chronic Toxicity          Chromium, lead and nickel have been identified as potential human carcinogens.

CARCINOGENITY (Aluminum):      NTP? No                                      IARC Monographs? No                      OSHA Regulated? No

SIGNS AND SYMPTOMS OF EXPOSURE                                      Irritation of skin and mucous membranes; cough; difficulty in breathing.

Exposure to dust or fume may cause irritation of skin and mucous membranes, cough, difficulty in breathing and lung changes in workers, potentially leading to pulmonary diseases.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE      None reported.

**EMERGENCY AND FIRST AID PROCEDURES**

Eyes                                         If this material contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately.

Skin    If this material contacts the skin, brush or vacuum off excess dust and promptly wash the contaminated skin with soap and water. skin cuts and abrasion can be treated with standard first aid. If material is molten, treat as a burn.

Inhalation                                 If a person breathes large amounts of this material move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Ingestion                                  Ingestion of significant amounts of material is unlikely. If large quantities of this material are swallowed, induce vomiting in conscious individual. Get medical attention immediately.

NFPA Ratings (HMIS)                      Health: 1                                      Fire: 0                                      Reactivity: 0

**Section VII - Precautions For Safe Handling And Use**

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED                      No special precautions are necessary for spills of bulk material. Wear gloves to prevent metal cuts.

If quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentrations of airborne dust. Do not use compressed air for cleaning. Cleanup personnel should wear approved respirators and protective clothing. Place all collected metal or particulates in a labeled container.

Molten metal spills can cause concrete to explode. Spilled molten metal can be reclaimed for reuse.

CERCLA Reportable Quantity (RQ)    None Established.

WASTE DISPOSAL METHOD    Sell waste material for scrap.

In the United States, this product must be disposed of in accordance with applicable federal, state and local solid waste labeling, shipping and disposal laws and regulations.

RCRA Classification    None established

RCRA Hazardous Waste Number    None established

**Section VII - Precautions For Safe Handling And Use (continued)**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	<p>Use good housekeeping practices to prevent accumulations of dust and keep airborne dust concentrations at a minimum. Avoid breathing dust or fumes.</p> <p>Store metal in a dry area away from incompatible materials. Keep dust away from sources of ignition.</p> <p>Aluminum alloy sows and ingots may have shrink cavities that may contain moisture. Ice, snow, grease, oil or moisture can cause explosions if charged into a melting furnace. Remove these contaminants before charging ingot to melting furnace. Preheat metal when required to evaporate moisture prior to melting.</p>
OTHER PRECAUTIONS	<p>Handling molten aluminum presents special hazards. Refer to Aluminum Association Publication 69, "Guidelines for Handling Molten Aluminum". For extensive information, write the Aluminum Association, 818 Connecticut Ave., N.W., Washington., DC 20006 for a copy of this publication.</p>
SARA TITLE III THRESHOLD PLANNING QUANTITY (TPQ)	None established.

**Section VIII - Control Measures**

RESPIRATORY PROTECTION	<p>Employees may wear NIOSH or MSHA approved respirators as specified by an Industrial Hygienist or qualified Safety Engineer for protection against airborne dusts or fumes.</p>
VENTILATION	<p>Local exhaust ventilation is required when dust or fumes are generated. Use general and local exhaust ventilation to keep airborne concentrations of dust or fume below the OSHA PEL and TWA shown in Section II.</p>
PROTECTIVE GLOVES	<p>Advisable to avoid cuts and skin abrasions. Gloves and barrier creams may be necessary to prevent skin sensitization and dermatitis</p>
EYE PROTECTION	<p>Approved safety glasses or goggles should be worn when exposed to dusty or hot material. Face shields should be worn around hot metal. Safety eyewash stations should be provided near work areas.</p>
OTHER PROTECTIVE CLOTHING OR EQUIPMENT	<p>Full protective clothing should be worn by workers exposed to heavy concentrations of dust or high heat and during alloying operations to prevent injury from molten metal splashing, spilling, etc.</p>
WORK/HYGIENIC PRACTICES	<p>Do not eat, drink or use tobacco products in work areas. Wash thoroughly after skin contact and before eating, drinking, use of tobacco products or using restrooms. Take a shower and change clothes at the end of the shift. All protective and contaminated clothing must be left at the plant. Launder all other work clothing separately from other household laundry.</p> <p>Pre-employment medical evaluations should be provided. Attention should be directed to skin, eyes, respiratory tract, blood, kidneys, pulmonary function and neurological health. Chest x-rays should be included if symptoms are present.</p>

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**Section IX - SARA Section 313 Supplier Notification**

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR 372:

CAS NUMBER	CHEMICAL NAME	PERCENT BY WEIGHT
7429-90-5	Aluminum (fume or dust only)	[a] [b]
7440-47-3	Chromium	[a] [b]
7440-50-8	Copper	[a] [b]
7439-92-1	Lead	[a] [b]
7439-96-5	Manganese	[a] [b]
7440-02-0	Nickel	[a] [b]
7440-66-6	Zinc (fume or dust only)	[a] [b]

[a] See Section II, Hazardous Ingredients/Identity Information, for percentage by weight.

[b] Must be adjusted by the fraction of the material that exists as fume or dust.

THIS INFORMATION MUST BE INCLUDED IN ALL MSDS THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

**Section X - Additional Information**

THIS MATERIAL SAFETY DATA SHEET SHOULD BE MADE AVAILABLE BY THE BUYER TO EACH OF THE BUYER'S PLANT WORKERS. CHANGES MADE TO THIS DOCUMENT TOTALLY VOID THE VALIDITY OF THIS MSDS. THIS DOCUMENT IS COPYRIGHT 2005

REFERENCES

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U.S. Environmental Protection Agency, Title III List of Lists, Pub. EPA 560/4-88-003, Washington, D.C., October 2001

NOTICE

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