MSDS: Anodized Aluminum

ALUMINUM CASTING ALLOY 514

Prepared October 2, 2007

IDENTITY

TRADE NAME
Aluminum Association Registration Number 514.X
(where X is 0 for castings, 1 or 2 for ingot)

PRODUCT
Aluminum foundry ingot and weld wire

CHEMICAL FAMILY
Mixture

CHEMICAL FAMILY
Aluminum (AL) alloys containing Si, Fe, Cu, Mn, Mg, Cr, Ni, Zn, Sn, Ti, Be, Pb and/or Sr.

SECTION I

MANUFACTURER'S NAME
Trialco, Inc.

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EMERGENCY TELEPHONE NUMBER
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(800) 424 – 9300 - CHEMTREC

TELEPHONE NUMBER FOR INFORMATION
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SECTION II – HAZARDOUS INGREDIENTS/ IDENTITY INFORMATION

MATERIAL	FORMULA	PERCENT by WEIGHT	CAS NUMBER	HUMAN* CARCINOGEN	FORM	OSHA** 8-hr PEL	OSHA 8-hr TWA	ACGIH 8-hr TLV (15-min STEL) mg/m^3
Aluminum	Al	Remainder	7429-90-5		dust	15 TD	15 TD	10
					dust	5 RF	5 RF	
					fume	"----"	5	5
Beryllium	Be	0.004-0.007	7440-41-7	Yes		0.002 Bel	0.002 Be2	ALARA
Chromium	Cr		7440-47-3	Yes?		1	1	0.5
Copper	Cu	0.15 max	7440-50-8		dust	1	1	1
					fume	0.1	0.1	0.2
Iron	Fe	0.50 max	7439-89-6					
Lead	Pb		7439-92-1	Yes		0.05 Pbl	0.05 Pbl	
Magnesium	Mg	3.6 -4.5	7439-95-4					
Manganese	Mn	0.30 max	7439-96-5		dust	5 C	5C	5
					fume	5C	1 (3)	1 (3)
Nickel	Ni		7440-02-0	Yes		1	1	1
Silicon	Si	0.50 max	7440-21-3			15 TD 5 RF	10 TD 5 RF	10
Strontium	Sr		7440-24-6					
Tin	Sn		7440-31-5					2
Titanium	Ti	0.06 - 0.25	7440-32-6					
Zinc	Zn	0.15 max	7440-66-6		dust fume			

GENERAL NOTES

*** Identified as a potential human carcinogen**
**** For dusts without explicit OSHA PEL, a nuisance dust PEL applies: 15 mg/m^3 total dust, 5 mg/m^3 respirable dust**

ALARA: **As Low As Reasonably Achievable**
BEI: **A ACGIH Biological Exposure Index exists**
C: **Ceiling limit**
RF: **Respirable fraction of dust**
S: **Skin**
TD: **Total Dust**

Material-Specific Notes
Be1: Ceiling: 0.005 mg/m^3, 30-minute STEL: 0.025 mg/m^3
Be2: Ceiling: 0.025 mg/m^3, 30-minute STEL: 0.005 mg/m^3
Nil: Assumes compound is insoluble
Pb1: See also 29 CFR 1910.1025

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT	3733°F(2056°C)	SPECIFIC GRAVITY(H_2O=1)	2.6 - 2.9
VAPOR PRESSURE (mm Hg)	NA	MELTING POINT	1050-1220°F (566-660°C)
VAPOR DENSITY (Air=1)	NA	EVAPORATION RATE (Butyl acetate-1)	NA
SOLUBILITY IN WATER	Insoluble		
APPEARANCE AND ODOR (at 20°C)	Silvery gray color, odorless solid		

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	FLAMMABLE LIMITS	LEL	UEL
NA	Nonflammable	NA	NA

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 extinguishing agents (Lith X).

SPECIAL FIRE FIGHTING PROCEDURES
Confine metal powder or dust fire, avoid spreading. Apply Class D (Lit 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. In solid ingot form, there is no fire or explosion hazard. 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 elements.
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

ROUTE(S) 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.
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 aluminum 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). Beryllium, chromium and nickel compounds have been associated with allergic reactions, rashes and lung changes. Beryllium and nickel are respiratory irritants and may cause pneumonitis. Chronic beryllium overexposure may cause lung diseases, characterized by shortness of breath, cough, and fatigue, and may ultimately lead to respiratory and cardiac failure.
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 severe lesions, with slow healing.
Eyes	Dust or fumes containing component elements of aluminum alloys may cause eye irritation.
Ingestion	Ingestion of significant amounts of material is unlikely.
Unusual Chronic Toxicity	Beryllium, chromium, cobalt, lead and nickel have been identified as potential human carcinogens.

CARCINOGENICITY NTP? NO IARC MONOGRAPHS? NO OSHA REGULATED? NO

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

EMERGENCY AND FIRST AID PROCEDURES

Eyes	Flush with copious amounts of water to remove particles. Contact a physician
Skin	Brush off excess dust. Wash area with plenty of soap and water. Skin cuts and abrasion can be treated with standard first aid. If material is molten, treat as a burn.
Inhalation	Remove to fresh air. Contact a physician.
Ingestion	Ingestion of significant amounts of material is unlikely. If large quantities of material are ingested, contact a Physician.

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)
WASTE DISPOSAL METHOD	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)
RCRA Hazardous Waste Number	(None)

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Use good housekeeping practices to prevent accumulations of dust and keep airborne dust concentrations at a minimum.

Avoid breathing dust or fumes.
Store metal in a dry area away from incompatible materials.
Keep dust away from sources of ignition.

Preheat metal when required to evaporate surface moisture prior to melting. Ice, snow, grease, oil or moisture can cause explosions. Remove these contaminants before charging ingot to melting furnace.

OTHER PRECAUTIONS

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.

SARA Title III Threshold Planning Quantity	(None)

SECTION VIII – CONTROL MEASURES

RESPIRATORY PROTECTION	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.
VENTILATION	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.
PROTECTIVE GLOVES	Advisable to avoid cuts and skin abrasions. Gloves and barrier creams may be necessary to prevent skin sensitization and dermatitis.
WORK/HYGIENIC PRACTICES	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. 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. 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. 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.

SECTION IX – SARA SECTION 313 SUPPLIER NOTIFICATION

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

CAS #	CHEMICAL NAME	PERCENT BY WEIGHT
7429-90-5	Aluminum (fume or dust only)	[a][b]
7440-41-7	Beryllium	[a]
7740-47-3	Chromium	[a]
7440-50-8	Copper	[a]
7439-92-1	Lead	[a]
7439-96-5	Manganese	[a]
7440-02-0	Nickel	[a]
7440-66-6	Zinc (fume or dust only)	[a][b]

[a] See Section II, Hazardous Ingredients/Identity Information, for percents 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 MSDSs 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.

REFERENCES

U.S. Dept. of Labor, OSHA Regulations 29 CFR 1910.1000 through 29 CFR 1910.1200, January 19,1989

American Conference of Governmental Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices for 1989-1990, Cincinnati, 1989.

U.S. Environmental Protection Agency, Title III List of Lists, Pub. EPA 560/4-88-003, Washington, D.C., December 1988

Merck & Co., The Merck Index, 10th Edition, Rahway, NJ, 1983.

U.S. Dept. of Health and Human Services, NIOSH, Registry of Toxic Effects of Chemical Substances, April 1989.

Sax, N. Irving, Dangerous Properties of Industrial Materials, 5th edition, Van Nostand, New York, 1979.

U.S. Dept. of Health and Human Services, NIOSH, Pocket Guide To Chemical Hazards, fifth printing , Pub. No. 85-114, September 1985.

Plunkett, E.R., Handbook of Industrial Toxicology, Chemical Publishing Co., New York, 1976.

Bretherton, Handbook of Reactive Chemical Hazards, Butterworths, 1979.

NOTICE

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