



MATERIAL SAFETY DATA SHEET

ALUMINUM PRODUCTS

CODE NO. 3204

ORIGINAL ISSUE DATE: 10/1/1991 REVISED: 2/2/2004

IDENTIFICATION

KLAUER

MANUFACTURING COMPANY

PRODUCT NAME: Aluminum Alloys
(Hot Dipped)

COMMON NAME (S): Aluminum

CASE NO.: None

PRODUCT USAGES: Metal - Primary Metal

CHEMICAL FAMILY: 3004 / 3104 Aluminum Alloy Series

D.O.T. HAZARDOUS MATE Metal - Primary Metal

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D.O.T. HAZARD CLASS: N / A
UN/NA ID NO.:

I. INGREDIENTS (This may not be a complete list of components)

NOTE: Aluminum products under normal conditions do not present an inhalation, ingestion or contact health hazard. (See Section VII)

Compound Name:	CAS No:	Carcinogen **	Composition Amount (Vol.)
Aluminum Metal	7429-90-5	N/A	95.00% to 96.50%
Manganese	7439-96-5	N/A	0.80% to 1.50%
Magnesium	7439-95-4	N/A	0.80% to 1.30%

** Listed by 1=NTP, 2=IARC, 3=OSHA, 4=OTHER (ACGIH)
N/A=Not Applicable
Composition given are typical values, not specifications.

II. OCCUPATIONAL EXPOSURE LIMITS

Substance	Source	Date	Type	Value/Units	Time
Magnesium Oxide Fume	OSHA	1989	TW A	10.0 mg/m3	8 Hrs
Manganese	OSHA	1989	CEILING	5.0 mg/m3	8 Hrs - Total
Aluminum Metal	OSHA	1989	TW A	15.0 mg/m3	8 Hrs - Resp.
Aluminum Metal & Oxide	ACGIH	1989-90	TW A	10.0 mg/m3	8 Hrs
Manganese Dust/Compound	ACGIH	1989	CEILING	5.0 mg/m3	8 Hrs
Manganese Fume	ACGIH	1989-90	TW A STEL	1.0 mg/m3	15 Min
Magnesium Oxide Fume	ACGIH	1989-90	TW A	10.0 mg/m3	8 Hrs

III. SUMMARY OF HAZARDS

CAUTION: *Metal machining or grinding operations may produce fine particulate or dust; heating, melting, welding or brazing may produce metal fume and particulates. Particulates may irritate eyes.*

IV. PHYSICAL DATA

Material is (at normal conditions):	Liquid		Appearance and Odor:	
	Solid	X		Silver, Grey metallic, Solid
	Gas			Odorless ingot or sheet form
	Other			
ACIDITY/ALKALINITY:	MELTING / FREEZING RANGE:		SPECIFIC DENSITY:	
pH - N/A	1165° - 1210° F		2.72 TO 2.73	
SOLUBILITY IN WATER:	BOILING POINT:		VAPOR PRESSURE:	
N/A	N/A		N/A	

V. PROTECTIVE EQUIPMENT AND OTHER CONTROL MEASURES

Respiratory:	If Exposure exceeds the PEL/TLV, use NIOSH/MSHA approved respirator as specified in the NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards.
Eye:	Use safety glasses with side shields or goggles to prevent injury from high dust concentrations. Use goggles or shield with appropriate light filtration during welding or cutting operations.
Skin:	Where use can result in skin contact with particulate, practice good personal hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking. Use appropriate P.P.E. to guard against burns if working with hot or molten metal.
Engineering Controls:	Use adequate ventilation to keep fume or dust concentrations below the occupational exposure limits shown in Section II. (Refer to ANSI Z49.1 "Safety In Welding and Cutting", OSHA Regulation CFR 1910.252. If ventilation is used to convey finely divided aluminum generated by grinding, sawing, etc., special ventilation provisions may be required to avoid explosion hazards. See "National Fire Protection Association" Codes, NFPA 65 and 651)
Other Hygienic and Work Practices:	Where applicable, use protective gloves to protect against heat or sharp metal edges. Molten metal handling requires the use of both primary and secondary personal protective equipment. Refer to "Aluminum Association" Guidelines. Hot aluminum does not present any warning color change; special caution should therefore be taken in case the metal would be hot.

VI. EMERGENCY MEDICAL PROCEDURES

Inhalation:	Immediately remove from contaminated area to fresh air. If irritation persists, or if other signs or symptoms develop seek medical attention.
Eye Contact:	Mechanical injury only. Treat as mechanical injury. Treat as inert foreign body.
Skin:	Not expected to present a significant skin contact hazard under anticipated conditions of normal use. In case of burn, due to contact with hot metal. Rinse with plenty of cold water. If skin damage occurs resulting from handling hot metal, seek medical attention.
Ingestion:	Not expected to present a significant ingestion hazard under anticipated conditions of normal use.

VII. HEALTH HAZARDS

Summary of Acute Hazards:	Dust and Fumes may irritate the eyes and upper respiratory tract.
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Route of Exposure	Signs and Symptoms	Primary Routes
Inhalation:	Aluminum dust is considered a nuisance particulate which has little adverse effect on lungs when exposures are kept under reasonable control.	<input checked="" type="checkbox"/>
Eye Contact:	Particles in eye may cause irritation.	<input checked="" type="checkbox"/>
Skin Absorption:	None is expected since it is very poorly absorbed.	<input type="checkbox"/>
Skin Contact:	Skin contact with hot aluminum metal can cause severe burns.	<input checked="" type="checkbox"/>

VII. HEALTH HAZARDS (Continued)

Route of Exposure	Signs and Symptoms	Primary Routes
Ingestion:	None expected.	
Summary of Chronic Hazards and Special Health Effects:	Aluminum fumes generated during welding or melting operations present minimum long term health risks. Mig welding or plasma ARC cutting of aluminum alloys can generate ozone, nitric oxides, and ultraviolet radiation. Ozone overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and elders flash. High concentrations of freshly formed fumes of magnesium oxides and manganese oxides can produce short-term symptoms of metal fume fever. High concentrations of manganese dust can affect the central nervous system.	
Additional Information / Regulations:	This product contains trace amount of lead (Pb) and Chromium. The doses may be beyond that for which the California Safe Drinking Water and Toxic Enforcement Act of 1986 requires notification in California. Refer to the appropriate regulation for the notification wording guidelines. However, such a daily dose is not considered to be a health hazard based on current toxicological studies.	
Target Organs:	Respiratory tract.	
Product Sensitization:	N/DA (N/DA = No date available)	

VIII. FIRE AND EXPOSURE DATA

Fire and Explosion Hazards:	Explosion hazard exists when small particles are dispersed in the air. Extremely fine particles may ignite spontaneously; larger particles require a heat / ignition source. May burn with intense heat generation (thermite).		
Extinguishing Media:	Apply Class D Powder or Dry Sand on to burning dust / powder.		
Special Firefighting Procedures:	Allow small non-threatening amounts of dust / powder to "Burn itself out". Do not disturb particles while applying extinguishing media. Do not apply water to dust / powder fire. Do not enter fire area without NIOSH / MSHA approved pressure demand combination type C / supplied air or SCBA and additional protection.		
Flash Point:	N/A	Autoignition Temperature:	N/A
		Flammable Limits:	N/A

IX. REACTIVITY

Stability:	Stable except when it is a finely divided or ground into powder.	Hazardous Polymerization:	N/DA
Conditions to Avoid:	Molten aluminum explode upon contact with water. Finely divided aluminum may explode when mixed with halogenated solvents, bromated, iodated, or ammonium nitrate. Finely divided aluminum reacts with halogenated acids, water, and sodium hydroxide to produce hydrogen gas.		
Hazardous Decomposition Products:	Toxic gases, aerosols, and vapors may be released in a fire involving aluminum alloys if fumes or other compounds or other contacting materials are involved. Finely divided aluminum reacts with halogenated acids, water, and sodium hydroxide to product hydrogen gas.		

X. SPILL AND DISPOSAL

Precautions (if material is spilled or released)	No notable environmental hazard is anticipated to be associated with the accidental "release" of this material on land. This material should be recovered from aquatic environments. Do not attempt to clean up with a vacuum.		
Hazardous Decomposition Products:	Maximize product recovery for recycling. Conditions of use may cause this material to become a solid "hazardous waste"; as defined by state, local or federal laws. Solid waste "leachate" testing may indicate the need for properly permitted disposal of such wastes in compliance with all applicable laws. Conditions my also generate liquid wastes with metal concentrations in excess of those permitted through pretreatment or direct discharge NPDES requirements. Appropriate analyses should be conducted to ensure compliance with existing wastewater permits.		

XI. ADDITIONAL PRECAUTIONS

**Handling, Storage,
and
Decontamination
Procedures:**

Good housekeeping must be practiced during storage, transfer, handling and use to avoid excessive dust accumulation. Ingots and metal scrap should be thoroughly dried prior to re-melting due to explosion hazard. Check metal temperature with usual methods before handling it. For more information on handling, and storage of aluminum request a copy of "Guideline for Handling Molten Aluminum" and "Recommendations for Storage and Handling of aluminum Powder and Paste", published by The Aluminum Association, 900 Nineteenth Street N.W., Washington, DC 20006.

**General
Comments:**

Use good personal hygiene. Wash hands with mild soap and water before eating, drinking, smoking or before leaving work after contact with this material dust or fume.;

SARA 313

This product may contain the following chemical which is on the toxic chemical list of section (313) of the United States Emergency Planning and Community Right-to-Know Act of 1986, SARA Title III. Therefore, users and distributors of this product will be subject to the reporting requirements of 40 CFR 372.

Chemical
Manganese

CAS
7429-90-5

--- Note ---

Qualifications:

SCU = Subcutaneous
N/DA = No Data Available

MUS = Mouse
Min. = Minimum

Rem. = Reminder
Max. = Maximum

DISCLAIMER OF LIABILITY

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

This MSDS was prepared and is to be used on for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

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