



Safety Data Sheet: Aluminum Alloys

Section 1: Product Identification	
<p>Manufacturer/Supplier: Wolverine Tube, Inc. 2100 Market Street NE Decatur, AL 35601 (800) 633-3972</p> <p>GHS Product Identifier: Aluminum Alloys Other Means of ID: Aluminum Dust, Al</p>	<p>Recommended Use and Restrictions: Manufacture of articles.</p> <p>Emergency Information: CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300 International CHEMTREC, call: 1-703-527-3887</p>

Section 2: Hazard Identification			
<p>Classification: Aluminum and aluminum alloys are considered an “article” and not hazardous in its solid form. However, certain process such as cutting, milling, grinding, melting and welding could result in some hazardous materials being emitted. The GHS Classification below pertains to these emitted products during these processes.</p> <p>Signal Word, Hazard Statements & Symbols: WARNING</p>			
Symbols	Hazard	GHS Classification	Hazard Statements
	Flammable Solid	Category – 1	Flammable Solid (in chips or powder form)
	STOT (single exposure)	Category – 1	May cause respiratory and skin irritation.
N/A	Eye Irritation	Category – 2B	Causes eye irritations.
<p>Notes: STOT – Specific Target Organ Toxicity</p>			

Precautionary Statements

Prevention:

Do not breathe dust/fume/gas/vapor/spray. Use in a well-ventilated area. Avoid generating dust. Dusts and fines from processing may be ignitable. Use personal protective equipment as required. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Contaminated work clothing should not be allowed out of the workplace.

First Aid Response:

EYES: Flush eyes with plenty of water for at least 15 minutes. Seek medical attention if eye irritation persists.
SKIN: Wash affected area with mild soap and water. Seek medical attention if skin irritation persists.
INHALATION: Remove individual to fresh air. Check for clear airway, breathing and presence of pulse. If necessary administer CPR. Consult a physician immediately.
INGESTION: Dust may irritate mouth and gastrointestinal tract. If ingested, seek medical attention.

Storage:

Store away from strong acids, alkalis and oxidizers. Store away from mercury, acetylene and halogens. Store in accordance with federal, state and local regulations.

Disposal: Aluminum should be recycled whenever possible. Otherwise, dispose of in accordance with applicable federal, state and local regulations.

Section 3: Composition and Information on Ingredients

Composition:

Name:	CAS #	% by Weight
Aluminum (base metal)	7429-90-5	99.9-100
Alloying Elements	---	0-0.1

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use eye ointment. Seek medical attention immediately.

Skin Contact: After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient (moisturizing cream or lotion). If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Ingestion: Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Important Symptoms and Effects: Aluminum and aluminum alloys as sold and shipped is not likely to present acute or chronic health effects. However, during processing (cutting, milling, grinding, melting or welding) emitted byproducts may cause irritations, difficulty breathing, coughing or wheezing. May cause allergic skin reactions.

Section 5: Fire and Explosion Data

Suitable Extinguishing Media: Non-flammable. Not applicable for solid product. Use Class D extinguishing agents or sand on fires involving dusts or fines. Use extinguishers appropriate for surrounding materials. DO NOT use water on molten metal. DO NOT use water on dust, powder or fume fires.

Specific Hazards: Dusts from grinding operations may burn if they are ignited. Dust, powder and fumes are flammable when exposed to flame or by chemical reaction with oxidizing agents.

Hazardous Combustion Products: At temperatures above the melting point, fumes containing aluminum oxides and smaller amounts of other alloying elements (if present) may be liberated.

Special Protective Equipment and Precautions for Firefighters: Firefighters should wear self-contained NIOSH-approved breathing apparatus and full protective clothing.

Explosion Data: Molten metal in contact with water may be explosive.

Section 6: Accidental Release Measures

Personal Precautions, PPE and Emergency Procedures: Not applicable to aluminum in solid state. Avoid dust formation. Ensure adequate ventilation. Clean-up personnel should be protected against contact with eyes and skin protection.

Environmental Precautions: Not applicable to aluminum in solid state. Do not flush into surface water or sanitary sewer system.

Methods and Materials for Containment and Clean-up: Solid metal does not pose any problems. Dust spills should be cleaned up avoiding dust generation. Wash down with water if in contact with acids. Avoid inhalation of dusts. Collect scrap aluminum for recycling.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible.

Storage:

Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool well-ventilated place.

Incompatibilities:

Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls and Personal Protection

Control Parameters: The exposure limits have been established as follows in the table below. All OEL values are established as 8-hour Time Weighted Average (TWA) concentrations unless otherwise noted.

Chemical Name	CAS Number	ACGIH TLV	OSHA PEL
Aluminum	7429-90-5	1.0 mg/m ³ (resp.)	15 mg/m ³ (Total), 5 mg/m ³ (Resp.)

Section 9: Chemical and Physical Properties

Physical State:	Solid	Other Information:	Not Applicable
Odor:	Not Applicable	Appearance:	Silver gray solid
pH:	Not Applicable	Odor Threshold:	Not Applicable
Boiling Point:	2494°C (4521°F)	Melting Point:	521-650°C (970-1200°F)
Evaporation Rate:	Not Applicable	Flash Point:	N/A
UFL%:	Not Applicable	Flammability	Not Flammable
Vapor Pressure:	Not Applicable	LFL%:	Not Applicable
Relative Density:	2.7	Vapor Density:	Not Applicable
Solubility:	Not Soluble	Specific Gravity:	No Data
Auto-Ignition Temp:	Not Applicable	Partition Coefficient:	No Data
Viscosity:	Not Applicable	Decomposition Temperature:	No Data

Section 10: Stability and Reactivity Data

Stability: The product is stable. Aluminum and its alloys are stable under normal storage and handling conditions.

Possibility of Hazardous Reactions: Hazardous polymerization cannot occur.

Conditions to Avoid:

Acids & alkalis: reacts to generate flammable hydrogen gas and heat.

Oxidizers: violent reaction with considerable heat generation.

Note: Generation rate is greatly increased with smaller particles (i.e. fines and dust).
Avoid dust formation. Molten metal can react violently with water or moisture.

Incompatible Materials: Yes, strong acids, alkalis and oxidizers. Also, acetylene.

Hazardous Decomposition: None.

Section 11: Toxicological Data			
Component	LD ₅₀ Oral	LD ₅₀ Dermal	LD ₅₀ Inhalation
Aluminum	Unknown	---	---
<p>Likely Routes of Entry: None for Aluminum & alloys in their natural solid form. Prolonged skin contact with coated aluminum may cause skin irritation in sensitive individuals. Inhalation of metal particulate or elemental oxide fumes generated during welding, burning, grinding or machining may pose acute or chronic health effects.</p> <p>Eyes: High concentrations of dust may cause irritation to the eyes. Fumes can cause eye irritations. Ultra-violet radiation from welding can cause flash burns (welder's flash or pink eye).</p> <p>Skin: May cause skin irritations. Prolonged skin contact with coated aluminum may cause skin irritation in sensitive individuals. Workers with anemia, kidney damage, digestive, respiratory, nervous systems, pregnant women and fertile females warrant particular attention.</p> <p>Inhalation: Dust may irritate nose and throat. If heated, aluminum fumes may cause metal fume fever, a delayed, benign, transient flu-like condition.</p> <p>Symptoms related to the physical and chemical characteristics: None for Aluminum & alloys in their natural solid state.</p> <p>Effects of acute exposure to material: Aluminum: Can cause skin and eye irritation.</p> <p>Effects of chronic exposure to material: Aluminum: Chronic overexposure to aluminum can result in lung damage and has been associated with asthma-like syndrome. Accumulation of aluminum in the body may result in neurological damage, anemia and bone softening. Repeated overexposure to high levels of aluminum oxide may lead to pulmonary fibrosis, a progressive lung disorder.</p> <p>STOT (Single Exposure): Can cause skin and eye irritation. STOT (Repeated Exposures): Respiratory system. Allergic skin reactions.</p> <p>Mutagenicity of material: N/A.</p> <p>Reproductive Effects: N/A</p> <p>Teratogenicity of Material: N/A</p> <p>Carcinogenicity of Material: Aluminum: Aluminum is not listed by the IARC as a carcinogen. However, the production of aluminum is classified by the IARC as Class 1 "Carcinogenic to Humans."</p> <p>Synergistic Materials: N/A Aspiration Hazard: No data. Sensitization of Material: Workers with skin sensitivity warrant particular attention.</p> <p>LD₅₀ (of Material): Not established LC₅₀ (of Material): Not established</p> <p>Notes:</p> <ul style="list-style-type: none"> • STOT – Specific Target Organ Toxicity • International Agency for Research on Cancer (IARC) - Summaries & Evaluations (2008). 			

Section 12: Ecological Data

Ecotoxicity: No data available for Aluminum & alloys in their natural solid state. However, individual components of the material have been found to be toxic to the environment. Metal dusts may migrate into soil and groundwater and be ingested by wildlife.

Component	Toxicity to Fish	Toxicity to Algae	Toxicity to Microorganisms
Aluminum	LC ₅₀ Rainbow Trout 96 hr. 0.16 mg/L	---	EC ₅₀ Water Flea 24 hr. 3.5 mg/L

Persistence and Degradability: No Data

Bioaccumulative Potential: No Data

Mobility in Soil: No Data

Other Adverse Effects: None Known.

Section 13: Disposal Information

Waste Disposal Methods: Recover aluminum for recycling.

Container Cleaning and Disposal: Dispose of in accordance with applicable federal, provincial/state and local regulations.

Section 14: Transport Information

General Shipping Information: Material not regulated for shipping.

Shipping Name and Description: N/A

UN Number: N/A

Hazard Class: N/A

Packing Group/Risk Group: N/A

Transport Regulations: Canadian Transportation of Dangerous Goods Regulations (TDG) March 2011.
US Department of Transport (DOT) Hazardous Materials shipping information (Title 49 – Transportation March 2011).

Section 15: Other Regulatory Information

Regulatory Information: The components of this material are subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA – October 2006), as follows:

Chemical Name	SARA 302 (40 CFR 355, App. A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)	CERCLA Reportable Quantities
Aluminum	No	No	Yes	None Listed

SARA Threshold Planning Quantity: There are no specific Threshold Planning Quantities for the components of this material. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb. (4,540 kg) therefore applies, per 40 CFR 370.20.

TSCA Inventory Status: The components of this material are listed on the Toxic Substances Control Act Inventory.

CERCLA Reportable Quantity (RQ): No RQ's.

Other US Federal Regulations: None listed.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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The information contained herein is believed to be accurate but is not warranted to be so. All hazard classifications involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of a specific hazard. To deal adequately with the safe handling of this product, all the information contained in this SDS must be considered and reasonable safety precautions followed. The information contained in the Safety Data Sheet is based on the individual properties of the components of the mixture. Terrell Technical Services, Inc. has compiled the information and recommendations contained in this Safety Data Sheet from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the SDS was prepared. No warranty, guarantee, or representation is made as to the correctness or sufficiency of the information. The user of this product must decide for itself what specific safety measures are necessary to safely use this product, either alone or in combination with other products.

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