

# Material Safety Data Sheet

Freeman Aluminum Pattern Letter with Sprigs

MSDS No. 2

Date of Preparation: 8/13/01

Revision:

## Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** Freeman Aluminum Pattern Letter with Sprigs  
**Chemical Formula:** N/A  
**CAS Number:** N/A  
**Other Designations:** N/A  
**General Use:** N/A

<b>HMIS</b>	
<b>H</b>	#
<b>F</b>	#
<b>R</b>	#
<b>PPE†</b>	
†Sec. 8	

**Manufacturer:** Freeman Manufacturing and Supply Company, 1101 Moore Road, Avon, OH 44011 Phone (440)934-1902, FAX (440)934-7200, Hours of Operation 8-5, Emergency Phone Number 1-800-424-9300.

### ☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

## Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt or % vol
Aluminum	7429-90-5	remainder
Beryllium	7440-41-7	.003max.
Chromium	7440-47-3	0.25max.
Copper	7440-50-8	1.0-1.5
Iron	7439-89-6	0.6 max.
Lead	7439-92-1	-----
Magnesium	7439-95-4	0.40-0.60
Manganese	7439-96-5	0.50max.
Nickel	7440-02-0	0.03max.
Silicon	7440-21-3	4.5-5.5
Strontium	Unknown	-----
Tin	7440-31-5	-----
Titanium	7440-32-6	0.05-0.25
Zinc	7440-66-6	0.35max.

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
Aluminum	15mg/m <sup>3</sup> TD 5mg/m <sup>3</sup> RF fume5mg/m <sup>3</sup>	None estab.	Dust 10 mg/m <sup>3</sup> fume 5mg/m <sup>3</sup>	none estab.	none estab.	none estab.	none estab.
Beryllium	0.002mg/m <sup>3</sup> Bel	none estab.	ALARA	none estab.	none estab.	none estab.	none estab.
Chromium	1mg/m <sup>3</sup>	none estab.	0.5mg/m <sup>3</sup>	none estab.	none estab.	none estab.	none estab.
Copper	Dust 1mg/m <sup>3</sup> Fume 0.1mg/m <sup>3</sup>	none estab.	Dust 1mg/m <sup>3</sup> Fume 0.2mg/m <sup>3</sup>	none estab.	none estab.	none estab.	none estab.
Iron	-----	none estab.	-----	none estab.	none estab.	none estab.	none estab.
Lead	0.05Pbl	none estab.	-----	none estab.	none estab.	none estab.	none estab.
Magnesium	-----	none estab.	-----	none estab.	none estab.	none estab.	none estab.

Manganese	Dust 5mg/m <sup>3</sup> C Fume 1mg/m <sup>3</sup> C	Fume 3mg/m <sup>3</sup>	Dust 5mg/m <sup>3</sup> Fume 1mg/m <sup>3</sup>	Fume 3mg/m <sup>3</sup>	none estab.	none estab.	none estab.
Nickel	1mg/m <sup>3</sup>	none estab.	1mg/m <sup>3</sup>	none estab.	none estab.	none estab.	none estab.
Silicon	15mg/m <sup>3</sup> TD 5mg/m <sup>3</sup> RF	none estab.	10mg/m <sup>3</sup>	none estab.	none estab.	none estab.	none estab.
Strontium	-----	none estab.	-----	none estab.	none estab.	none estab.	none estab.
Tin	-----	none estab.	2mg/m <sup>3</sup>	none estab.	none estab.	none estab.	none estab.
Titanium	-----	none estab.	-----	none estab.	none estab.	none estab.	none estab.
Zinc	-----	none estab.	-----	none estab.	none estab.	none estab.	none estab.

**General Notes:**

ALARA: As Low as Reasonably Achievable

BEI: An ACGIH Biological Exposure Exists

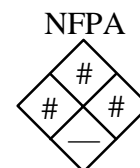
C: Ceiling Limit

RF: Respirable fraction of dust

TD: Total Dust

Bel: Ceiling: 0.005mg/m<sup>3</sup>, 30-minute STEL: 0.025mg/m<sup>3</sup>

Pbl: See also 29 CFR 1910.1025

**Section 3 - Physical and Chemical Properties****Physical State:** N/A**Appearance and Odor:** Silvery gray color, odorless solid**Odor Threshold:** N/A**Vapor Pressure:** N/A**Vapor Density (Air=1):** N/A**Formula Weight:** N/A**Density:** N/A**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** 2.6-2.9**pH:** N/A**Water Solubility:** Insoluble**Other Solubilities:** N/A**Boiling Point:** 3733°F (2056°C)**Freezing/Melting Point:** Melts at 1050-1220°F (566-660°C)**Viscosity:** N/A**Refractive Index:** N/A**Surface Tension:** N/A**% Volatile:** N/A**Evaporation Rate:** N/A**Section 4 - Fire-Fighting Measures****Flash Point:** N/A**Flash Point Method:** N/A**Burning Rate:** N/A**Autoignition Temperature:** N/A**LEL:** N/A .....**UEL:** N/A**Flammability Classification:** N/A**Extinguishing Media:** Use Class D extinguishing agents (Lith X) for metallic, organic, aluminum dusts or powders which may burn.

**Unusual Fire or 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.

**Hazardous Combustion Products:** N/A

**Fire-Fighting Instructions:** Confine metal powder or dust fire, avoid spreading. Apply Class D (LithX) powder in heavy quantities. Do not use water or moist sand. Fire-fighters should wear self-contained breathing apparatus and protective clothing. Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

## Section 5 - Stability and Reactivity

**Stability:** Freeman Aluminum Pattern Letter with Sprigs is stable at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** 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.

**Conditions to Avoid:** Stable at room temperature

**Hazardous Decomposition Products:** Evolved hydrogen in confined areas may be an explosive hazard. Potentially hazardous oxides of metals may be produced when aluminum alloys are heated, welded, or in molten state.

## Section 6 - Health Hazard Information

### Potential Health Effects

**Primary Entry Routes:** Inhalation and Skin

**Target Organs:** N/A

**Signs and symptoms of Exposure:** Irritation of skin and mucous membranes; cough; difficulty in breathing

#### Acute and Chronic Effects

**Inhalation:** Aluminum and aluminum alloys are not generally regarded as industrial toxins. In normal use, few health hazards occur. 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 leader 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 fumes 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 diseases, characterized by shortness of breath, cough, and fatigue, and may ultimately lead to respiratory and cardiac failure.

**Eye:** Dust or fumes containing component elements of aluminum alloys may cause eye irritation.

**Skin:** Dust 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.

**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:** IARC, NTP, and OSHA do not list Freeman Aluminum Pattern Letter with Sprigs as a carcinogen.

**Medical Conditions Aggravated by Long-Term Exposure:** N/A

### Emergency and First Aid Procedures

**Inhalation:** Remove to fresh air. Contact a physician.

**Eye Contact:** Flush with copious amounts of water to remove particles. Contact a physician.

**Skin Contact:** 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.

**Ingestion:** Ingestion of significant amounts of material is unlikely. If large quantities of material are ingested, contact a physician.

*After first aid, get appropriate in-plant, paramedic, or community medical support.*

**Note to Physicians:** N/A

## Section 7 - Spill, Leak, and Disposal Procedures

**Spill /Leak Procedures:** 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 air-borne 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.

**Containment:** For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

**Cleanup:** N/A

**Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.120).

**Disposal:** In the U.S., this product must be disposed of in accordance with applicable federal, state, and local solid waste labeling, shipping, and disposal laws and regulations. Contact your supplier or a licensed contractor for detailed recommendations.

**Disposal Regulatory Requirements:** N/A

**Container Cleaning and Disposal:** N/A

**Ecological Information:** N/A

### EPA Regulations:

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33): None

RCRA Hazardous Waste Classification (40 CFR 261.): Not classified

CERCLA Hazardous Substance (40 CFR 302.4) listed/unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112

CERCLA Reportable Quantity (RQ), lb (kg) : None

SARA 311/312 Codes:

SARA Toxic Chemical (40 CFR 372.65):

#### 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 of 40 CFR 372:

CAS#	Chemical Names	Percent by weight
7429-90-5	Aluminum (fume/dust only)	(a) (b)
7440-41-7	Beryllium	(a)
7440-47-3	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, % by weight.

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

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

### OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

OSHA Specifically Regulated Substance (29CFR 1910)

**State Regulations:** N/A

### Other Regulatory Information:

TSCA Inventory Status: All ingredients listed on TSCA Inventory.

## Section 8 - Exposure Controls / Personal Protection

**Engineering Controls:** N/A

**Ventilation:** Local exhaust is required when dust or fumes are generated. Use general/local to keep airborne concentrations of dust or fumes are generated. Use general/local to keep airborne concentrations of dust or fume below the OSHA PEL/TWA shown. Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Administrative Controls:** N/A

**Respiratory Protection:** Employees may wear NIOSH/MSHA approved respirators as specified by an Industrial Hygienist/ Safety Engineer for protection against airborne dusts/fumes. Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Avoid cuts/skin abrasions. Gloves and barrier cream may be used. Face shields should be worn around hot metal. Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. 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 evaluation 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 9 - Special Precautions and Comments

**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 dry areas 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 contaminant before charging ingot to melting furnaces.

Handling molten aluminum presents special hazards. Refer to Aluminum Association Publications 60, "Guidelines of Handling Molten Aluminum." For extensive information write the Aluminum Association 818 Connecticut Ave., N.W. Washington, DC 20006 for a copy of this publication.

### DOT Transportation Data (49 CFR 172.101):

<b>Shipping Name:</b>	<b>Packaging Authorizations</b>	<b>Quantity Limitations</b>
<b>Shipping Symbols:</b>	<b>a) Exceptions:</b>	<b>a) Passenger, Aircraft, or Railcar:</b>
<b>Hazard Class:</b>	<b>b) Non-bulk Packaging:</b>	<b>b) Cargo Aircraft Only:</b>
<b>ID No.:</b>	<b>c) Bulk Packaging:</b>	
<b>Packing Group:</b>		<b>Vessel Stowage Requirements</b>
<b>Label:</b>		<b>a) Vessel Stowage:</b>
<b>Special Provisions (172.102):</b>		<b>b) Other:</b>

**Prepared By:**

**Revision Notes:**

**Disclaimer:** We believe the information contained in this MSDS is correct as of this date, however, because the material may be used under conditions over which we have no control we give no warranty and assume no responsibility for any damage to person, property or business arising from such use. It is the responsibility of the user to ensure it is properly used.