

Material Safety Data Sheet

Freeman White Metal Pattern Letters

MSDS No. 16

Date of Preparation: 6/13/01

Revision:

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Freeman White Metal Pattern Letters
Chemical Formula: N/A
CAS Number: N/A
Other Designations: N/A
General Use: N/A

HMIS
H 1
F 0
R 0
PPE †
†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 (440) 934-1902.

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt or % vol
Tin (Sn)	7440-31-5	30-96
Lead (Pb)	7439-92-1	1-65
Antimony (Sb)	7440-36-0	1-8

TSCA Inventory Status: Chemical components listed on TSCA Inventory.

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
Tin	2mg/m ³	None estab.	2mg/m ³	None estab.	None estab.	None estab.	None estab.
Lead *	0.05 mg/m ³ 0.03mg/m ³ - 8hr TWA Action level	None estab.	0.05 mg/m ³	None estab.	None estab.	None estab.	None estab.
Antimony	0.5mg/m ³	None estab.	0.5mg/m ³	None estab.	None estab.	None estab.	None estab.

* OSHA Biological Monitoring Limit: 0.04mg/100 grams – whole blood

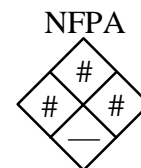
Section 3 - Physical and Chemical Properties

Physical State: N/A
Appearance and Odor: Silvery colored metal - odorless
Odor Threshold: N/A
Vapor Pressure: (of Lead) 1 @ 973°C
Vapor Density (Air=1): not volatile
Formula Weight: N/A
Density: N/A
Specific Gravity (H₂O=1, at 4 °C): 6.6 – 9.9
pH: N/A

Water Solubility: Insoluble
Other Solubilities: N/A
Boiling Point: (Of Lead) 1740°C
Freezing/Melting Point: N/A
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: Non-flammable
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: N/A

Unusual Fire or Explosion Hazards: Avoid the use of water in fighting fires around molten metal. Mixing water with molten metal can result in violent splattering and/or explosions. Dry chemical or other such agents should be used to fight fires near molten metal. Avoid breathing fumes.

Hazardous Combustion Products: N/A

Fire-Fighting Instructions: 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 face piece operated in pressure-demand or positive-pressure mode.

Section 5 - Stability and Reactivity

Stability: Solid metal is essentially non-reactive; however, prior to introducing into molten metal, preheat to eliminate moisture. Adding moist solid metal to molten metal will cause violent splattering and/or explosions.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Acid, bases, oxidizers and strong reducing agents. Toxic stibine gas (SbH₃) may be formed when acid solutions of antimony compounds are treated with zinc or other reducing agents.

Conditions to Avoid: N/A

Hazardous Decomposition Products: White metal does not decompose; however, fumes of the alloying metals will evolve upon melting. Antimony can form stibine gas at high temperatures especially in reducing environments.

Section 6 - Health Hazard Information

Potential Health Effects

Primary Entry Routes:

Inhalation: Dust and fumes

Eyes: Dust and fumes

Ingestion: Dust and fumes

Target Organs: N/A

Acute Effects:

Acute overexposures to tin or tin oxide dust or fume may result in irritation of the eyes and respiratory system. Skin contact with tin or tin oxide may produce a mild dermatitis. There are no reports of toxicity associated with the ingestion of tin or tin oxide.

Lead is a potent systemic poison. A rare condition, called acute encephalopathy, can result if gross overexposure to lead through inhalation or ingestion occur. This condition affects the brain and may result in rapidly developing symptoms and outcomes such as seizures, coma and death from cardiorespiratory arrest. Lead poisoning typically express itself in chronic overexposure situations (See Chronic Toxicity).

Antimony and its oxides are primary skin, mucous membrane, eye, nose and throat irritants. A dermatitis, resembling chicken pox, called "antimony spots" has occurred with skin contact resulting in itching, redness, pustule formation, and skin eruptions especially near sweat glands. This dermatitis is more commonly seen in association with hot weather and is usually localized to the forearms, underarms and thighs. Acute overexposure (inhalation or ingestion) to antimony has caused eosinophilia, gastrointestinal upset, vomiting, diarrhea, irritability, sleeplessness, fatigue, muscle cramps and dizziness. Gross overexposures to antimony may result in damage to the heart, liver and kidneys.

Antimony hydride (Stibine) is an extremely toxic gas (rotten egg odor) that is formed when antimony comes into contact with reducing agents or environments. Stibine gas can cause pulmonary edema and congestion upon inhalation. High levels (500 mg/m³) for 20 minutes have caused delayed deaths of mice within a few days.

Carcinogenicity: IARC, NTP, and OSHA do not list Freeman Pattern White Metal Letters as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: Nervous, cardiovascular, liver, kidney, respiratory and/or blood system diseases. Exposure to dust or fumes may also aggravate existing eye and skin conditions.

Chronic Effects: Chronic overexposure (by inhalation) to tin or tin oxide dust or fume may result in stannosis, a benign pneumoconiosis (dusty lung). No cases of massive or progressive fibrosis or decreased pulmonary function have been reported as a result of chronic exposure to tin dust or fume alone. Stannosis has not been associated with illness or decreased life expectancy. Chronic overexposure (by inhalation or ingestion) to lead has resulted in severe damage to blood forming, nervous, urinary and reproductive systems in humans.

Lead overexposure disrupts the blood forming system resulting in decreased hemoglobin and ultimately anemia. Gross overexposure, resulting in severe lead poisoning can damage the central nervous system in general and the brain specifically (encephalopathy). Severe cases of brain encephalopathy often lead to death preceded by vomiting, tremor, stupor, poor memory, restlessness, irritability and convulsions. Muscle weakness often develops at the same time and may progress to a disease of the peripheral nervous system called "wrist drop" or "foot drop". Chronic overexposure to lead has also resulted in kidney disease with few if any symptoms until permanent damage has occurred. Lead poisoning may also affect the gastrointestinal system producing abdominal colic with pain.

Chronic exposure to lead may also impair the reproductive systems of both sexes. Overexposure may result in impotence and sterility in men and decreased fertility and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected resulting in birth defects, miscarriage or still births. Acute and chronic non-reproductive effects of lead are rarely observed when blood lead levels are maintained below 40 micrograms lead per 100 grams of whole blood. OSHA recommends blood levels below 30 micrograms/100 grams of whole blood to minimize adverse reproductive health effects. (See OSHA Lead Standard for additional information).

Chronic daily inhalation of 45mg/m³ of antimony trioxide by guinea pigs resulted in extensive inflammation of the lung (pneumonitis) and fatty degeneration of the liver. Two separate long term (10 and 14.5 months), 100 hr./mo.) chronic inhalation studies of rats (100-125 mg/m³) and rabbits (89mg/m³) with antimony trioxide resulted in lipid pneumonias. No evidence of lung cancer was reported.

Tin, lead, and antimony are not listed in the IARC, NTP or OSHA lists of carcinogens.

Emergency and First Aid Procedures

Inhalation: Remove to fresh air. If difficulty in breathing occurs, administer oxygen and obtain medical attention immediately. If breathing stops, give artificial respiration and obtain medical attention immediately.

Eye & Skin Contact: If metal dust or fumes come in contact with eyes, flush eyes immediately with running water and obtain medical attention if irritation persists. If molten metal comes in contact with skin and eyes, thermal burns will occur. Standard emergency first aid for thermal burns must be applied. Obtain medical attention immediately.

Ingestion: If person is conscious, induce vomiting. Obtain medical attention immediately for treatment of possible lead poisoning. **Note to physician:** Prophylactic chelation to remove lead from the body must be done only under the supervision of a licensed physician in a clinical setting.

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

Special Precautions/Procedures: N/A

Section 7 - Spill, Leak, and Disposal Procedures

Spill /Leak Procedures: For molten metal, contain the flow over the surface with sand or other non-reactive material as a dam. Do not attempt to halt the flow of metal with shovels or hand tool. Due to possible excessive fumes involving spills of molten metal, wear appropriate respirator and protective clothing as required by OSHA. Allow spills of molten metal to cool, then remelt as scrap.

Small Spills: N/A

Large Spills: N/A

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: Scrap drippings and drosses should be stored in a closed container and returned to a solder recycle. Disposal of solder in any form must be in compliance with all applicable Federal, State & Local laws and regulations.

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)

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),

SARA 311/312 Codes:

SARA Toxic Chemical (40 CFR 372.65): This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of SARA TITLE III and 40 CFR 372:

LEAD	CAS# 7439-92-1	1 – 65%
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ANTIMONY	CAS# 7440-36-0	1 – 8%
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SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

OSHA Regulations: N/A

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

OSHA Specifically Regulated Substance (29CFR 1910)

State Regulations: N/A**Section 8 - Exposure Controls / Personal Protection****Engineering Controls:** N/A**Ventilation:** Use local exhaust or general ventilation to maintain dust and fume concentrations below all applicable TLVs or PELs. Dry sweeping of dust must be avoided.**Administrative Controls:** N/A**Respiratory Protection:** Only if TLV's are exceeded use a NIOSH/OSHA approved respirator for toxic dust and/or fume. 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 skin contact with metal. Wear protective gloves. For molten metal, heat and flame resistant gloves and clothing must be worn. Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when dusty conditions exist or are present. Face shields must be worn when working with molten metal.**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 work clothes separately after use. Follow all OSHA Lead Standard provisions (1910.1025). Accumulated dust in the work area should be vacuumed and disposed of properly.

Exposure monitoring for possible lead exposure is required by law. Exposure monitoring must be performed regularly to determine levels of exposure and appropriate control measures to be taken. Exposure levels in excess of applicable limits must be reduced by all feasible engineering controls, including (but not limited to) ventilation, fume and dust collectors, and enclosed workstations. Refer to OSHA Lead Standard (1910.1025) for additional requirements.

Section 9 - Special Precautions and Comments**Precautions to be taken in Handling and Storage:** Store in dry conditions. Lead use is regulated under OSHA 29 CFR 1910.1025. Metal should be preheated to eliminate moisture before being introduced into molten metal since violent splattering or explosions can occur. Avoid skin contact with metal and dust. Follow protective controls in Section 8.**DOT Transportation Data (49 CFR 172.101):****Shipping Name:****Shipping Symbols:****Hazard Class:** Not Classified**ID No.:****Packing Group:****Label:** None required**Special Provisions (172.102):****Packaging Authorizations****a) Exceptions:****b) Non-bulk Packaging:****c) Bulk Packaging:****Quantity Limitations****a) Passenger, Aircraft, or Railcar:****b) Cargo Aircraft Only:****Vessel Stowage Requirements****a) Vessel Stowage:****b) Other:****Prepared By:****Revision Notes:****Disclaimer:** The information contained on this Material Safety Data Sheet is believed to be accurate. The suggested procedures are based on experience as of the date of publication. They are not necessarily all-inclusive nor fully adequate in every circumstance. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulations, rules or insurance requirements. NO WARRANTY, EXPRESSED OR IMPLIED, OR MERCHANTABILITY, FITNESS OR OTHERWISE IS MADE.