



Material Safety Data Sheet

Section 1 – Manufacturer's Identification

Company Mueller Brass 2199 Lapeer Avenue Port Huron, Michigan 48060	Issue Date 05/07/09	Identification Number
Trade Name (Common Name or Synonym) Aluminum Alloys	Emergency Phone Number 810-987-7770	Information Phone # (EHS Manager) 616-794-4866
Chemical Name	Formula	DOT Identification Number

Section 2 - Ingredients

Material or Compound Compound	CAS Number	% Composition by Weight
*Copper	7440-50-8	0.00%-6.0%
*Zinc	7440-66-6	0.00%-8.0%
Aluminum	7429-90-5	85.0%-99.95%
*Manganese	7439-96-5	0.0%-1.5%
Magnesium	7439-95-4	0.00%-3.4%
Silicon	7440-21-3	0.0%-1.2%
*Chromium	7440-47-3	0.00%-0.35%

*Denotes a toxic chemical or chemicals subject to reporting requirements of Section 313 Emergency Planning and Community Right-To-Know Act of 1986 and 40CFR Part 372.

Section 3 – Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H ₂ O = 1)	2.7
Vapor Pressure (mm Hg)	N/A	Melting Point	890-1,210 F
Vapor Density (Air = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water N/A			
Appearance and Odor Silver Colored metal/no odor			

Section 4 – Fire and Explosion Hazard Data

Flash Point (Method Used) N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media N/A			
Special Fire Fighting Procedures Aluminum may not change color when heated; water on hot material may cause splattering which could result in scalding.			
Unusual Fire and Explosion Hazards Wet aluminum dust may cause formation of hydrogen gas.			

Section 5 – Reactivity Data

Stability	Unstable	Conditions to Avoid	
	Stable XXX	N/A	
Incompatibility (Materials to Avoid)	Halogens-Sodium Hydroxide		
Hazardous Decomposition or Byproducts	Wet aluminum dust may cause formation of hydrogen gas which is flammable, explosive.		
Hazardous Polymerizations	May Occur	Conditions to Avoid	
	Will Not Occur XXX	N/A	

Section 6 – Health Hazard Data

Route(s) of Entry	Inhalation? See Pages four of MSDS	Skin?	Ingestion ?
Health Hazards (Acute and Chronic)			
Carcinogenicity	NTP? NO	IARC Monographs? NO	OSHA Regulated? NO
Carcinogenicity	NTP? NO	IARC Monographs? NO	OSHA Regulated? NO
Signs and Symptoms of Exposure See Pages four of MSDS			
Medical Conditions			
Generally Aggravated by Exposure Anyone with pre-existing respiratory disease should avoid overexposure to dust, fumes and respiratory irritants.			
Emergency and First Aid Procedures If exposed to excessive levels of dust or fumes, remove the victim to fresh air. Eyes and skin flush with water for at least 15 minutes and seek medical assistance immediately.			

Section 7 – Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled	Prevent exposure to sodium hydroxide, halogens.
Waste Disposal Method	Material has high metals content, recycling is preferable. Must be disposed of in accordance with applicable local, state and federal regulations.
Precautions to be Taken in Handling and Storage	Prevent spillage from high storage areas.
Other Precautions	Aluminum may not change color when heated. If remelting avoid presence of moisture.
Wash hands before eating, drinking or tobacco use.	

Section 8 – Control Measures

Respiratory Protection (Specify Type) May be applicable if cutting, welding, grinding, etc. depending on exhaust.		
Ventilation	Local Exhaust If grinding, welding, etc.	Special
	Mechanical (General) Can be used with dust collection equipment.	Other N/A as shipped but protective clothing is determined by processing activity, i.e. casting, machining, etc.
PPE	Gloves Recommended when handling metal.	Eye Safety glasses, Goggles if cutting, welding, brazing, grinding. Etc.
	Other	
Work/ Hygiene Practices Wash hands before eating, drinking or tobacco consumption. Full body and hair shower ASAP to avoid exposing others. Normal washing of contaminated clothes and equipment is acceptable for decontamination.		

Section 9 – Prepared By

<p>Laura Shears Mueller Brass Safety / Environmental Manager 616.794.4866</p>
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HEALTH HAZARD DATA

HEALTH HAZARDS(SHORT TERM AND LONG TERM)

- ALUMINUM:** Chronic inhalation of aluminum fumes or dust may cause pulmonary fibrosis. aluminum fragments left in the cornea may cause irreversible eye damage. Aluminum has been implicated in Alzheimer's disease.
- COPPER:** Inhalation of copper fumes or dust may cause metal fume fever and damage to nasal membranes. The skin and hair may turn green in severe cases. Skin and eye irritation may occur. Skin sensitization may occur. Chronic exposure may cause Wilson's disease which is characterized by damage to the blood cells, brain, kidneys, liver and pancreas. Copper fragments left in the cornea may cause cataracts. Copper fragments that penetrate the eye may cause irreversible eye damage if not removed immediately.
- ZINC:** Zinc itself poses little health risk. It has been shown to cause eye, skin, and respiratory irritation. Freshly formed zinc oxide fumes causes a form of metal fume fever.
- MANGANESE:** Manganese has been shown to cause tumors in animal tests. Manganese oxide has been shown to be a mutagen in animal tests causing birth defects in offspring. Inhalation of manganese fumes or dust may causes irritation of the lungs. Manganese is also a skin and eye irritant. Long term poisoning may cause permanent damage to the central nervous system.
- SILICON:** Silicon itself poses little health risk. It has been shown to cause only minimal effects on the lungs if inhaled. Silicon dioxide formed by heating silicon in the presence of air may cause pulmonary fibrosis and silicosis in chronically exposed employees.
- CHROMIUM:** Chromium compounds act as allergens, which cause dermatitis to exposed skin. They may also produce pulmonary sensitization.
- MAGNESIUM:** Humans take in between 250 and 350 mg/day of magnesium and need at least 200 mg, but the body deals very effectively with this element, taking it from food when it can, and recycling what we already have when it cannot. There is no evidence that magnesium produces systemic poisoning although persistent over-indulgence in taking magnesium supplements and medicines can lead to muscle weakness, lethargy and confusion. *Effects of exposure to magnesium powder:* low toxicity & not considered to be hazardous to health. Inhalation: dust may irritate mucous membranes or upper respiratory tract. Eyes: mechanical injury or particle may embed in eye. Viewing of burning magnesium powder without fire glasses may result in "Welder's flash", due to intense white flame. Skin: embedding of particle in skin. Ingestion: unlikely; however, ingestion of large amounts of magnesium powder could cause injury.

SIGNS AND SYMPTOMS OF EXPOSURE

- ALUMINUM:** Pulmonary fibrosis is characterized by difficulty in breathing, coughing, shortness of breath, wheezing, and other respiratory symptoms.
- COPPER:** Metal fume fever is characterized by a dry irritated throat, chills, fever, and elevated white blood cell count, and general flu-like symptoms. Skin, eye, and nasal irritation and skin sensitization are characterized by pain, swelling, and reddening of the affected tissue. Wilson's disease is characterized by weakness, anemia, abdominal pain, and yellowing of the skin or jaundice.
- ZINC:** Skin and eye irritation are characterized by pain, swelling, and reddening of the affected tissue. Respiratory irritation is characterized by coughing and pain in the nose and throat. Zinc fume fever is characterized by a sweet taste in the mouth, dry throat, cough, weakness, generalized body aches, fever, nausea, and vomiting.
- MAGANESE:** Skin and eye irritation are characterized by pain, swelling, and reddening of the affected tissue. Chronic poisoning is initially characterized by a sleepiness and weakness in the legs followed by muscular tremors and nighttime leg cramps.
- SILICON:** Pulmonary fibrosis is characterized by difficulty in breathing, coughing, shortness of breath, wheezing, and other respiratory symptoms.
- CHROMIUM:** Acute exposures to dust or mist may cause coughing and wheezing, headache, dyspnea, pain on deep inspiration, fever and loss of weight. Tracheobronchial irritation and edema persist after other symptoms subside.
- MAGNESIUM:** For metal fume fever, see copper. Pain and swelling at the site of a wound may indicate the presence of embedded magnesium particles.