MANHATTAN BRASS & COPPER CO., INC. ALUMINUM CORPORATION

MATERIAL SAFETY DATA SHEET

56-71 49TH STREET P.O. BOX 145 MASPETH, N.Y. 11378

(718) 381-5300

Company	Issue Date	Identification Number
MANHATTAN BRASS & COPPER CO., INC. 56-71 49TH STREET MASPETH, N.Y. 11378	November 24, 1985	1
Trade Name (Common Name or Synonym) Aluminum Alloys Series	**Emergency Phone Number**	
1XXX, 2XXX, 3XXX, 4XXX, 5XXX, 6XXX, 7XXX	(718) 381-5300	
Chemical Name	**Formula**	**DOT Identification Number**
Aluminum	AL	NA

I. NOMINAL CHEMICAL COMPOSION

Material or Component	CAS Number	% Weight	Exposure Limits	
			1984-85 ACGIH TLV (mg/m³)	OSHA 1910.1000 PEL (mg/m³)
Base Metal				
Aluminum (Al)	7429-90-5	90-99.7	10.0 as metal dust and oxide 5.0 as welding fume	Not established Not established
Alloying Elements				
Cobalt (Co)	7440-48-4	< 1.0 - 10.00	0.1	0.1
Copper (Cu)	7440-50-8	< 1.0 - 10.00	0.2 as fume	0.1 as fume
Iron (Fe)	1309-37-1	< 1.0 - 10.00	5.0 as fume	10.0 as fume
Lead (Pb)	7439-92-1	< 0.2 - 0.7	0.15 as dust and fume	0.05 as dust and fume
Magnesium (Mg)	[illegible]	< 1.0 - 10.00	10.0 as fume	15.0 as fume
Manganese (Mn)	7439-96-5	< 1.0 - 10.00	1.0 as fume	5.0 ceiling
Silicon (Si)	7440-21-3	< 1.0 - 10.00	10.0 as total dust	Not established
Tin (Sn)	7440-31-5	< 1.0 - 10.00	2.0 as oxide and metal	2.0 as inorganic compounds
Zinc (Zn)	1314-13-2	< 1.0 - 10.00	5.0 as fume	5.0 as fume

Note: Aluminum alloys will be comprised of various combinations of the elements shown here. In addition, other alloying may be present in minute quantities.

II. PHYSICAL DATA

Material is (At Normal Conditions):	Appearance and Odor
☐ Liquid ☒ Solid ☐ Other	Silver Metallic - No Odor

Acidity/Alkalinity			Vapor Pressure (mm Hg at 20°C)
pH = NA	Melting Point 900 - 1215 °F Boiling Point NA °F	Specific Gravity (H_2O = 1) 2.5 - 2.9 Solubility in water (% by weight) NIL	NA

III. PERSONAL PROTECTIVE EQUIPMENT

Appropriate personal protective equipment is required when melting, casting, drawing, stamping, machining, forging, or otherwise processing. The nature of the processing activity will determine what form of equipment is necessary, i.e., glasses, NIOSH/MSHA approved respirator, protective clothing and ear protection.

IV. EMERGENCY MEDICAL PROCEDURES

For skin contact, remove particles by thoroughly washing with soap and water.

For eye contact, flush with water for at least 15 minutes. Get medical attention if irritation persists.

NA = Not Applicable

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V. HEALTH/SAFETY INFORMATION

Health

For standard operations (e.g., melting, cutting, grinding), aluminum alloys present a low health risk by inhalation and are usually considered a nuisance dust. Toxicity by ingestion - none expected. Skin and eyes - not an irritant. Welding and plasma cutting of alloys high in copper (2000 and 7000 series) may present the potential for overexposure to copper fume which can result in upper respiratory tract irritation, nausea, and metal fume fever. Nickel and chromium are other alloying elements considered hazardous as fume; however, they do not present a carcinogenic or other health concerns due to their low concentrations of the chemical form in which they are present. Overexposure to lead fumes over an extended period of time can result in such toxic effects as central nervous system disturbances, renal changes, peripheral neuropathy, gastrointestinal disturbances, anemia, and chromosomal changes.

Treshold Limit Value: See Ingredients Section.

Fire and Explosion

Flash Point °F	Auto Ignition Temperature	Flammable Limits in Air	Extinguishing Media
NA	NA °F	Lower % Upper NA %	Dry powder or sand.

Unusual Fire and Explosion Hazards: Damp aluminum dust may spontaneously heat with liberation of hydrogen to form explosive air mistures. SEE ADDITIONAL INFORMATION.

Extinguishing Media Not to be Used: Do not use water or halogen on dust fires.

Reactivity

Stability: ☒ Stable ☐ Unstable

Incompatibility (Materials to Avoid): Anhydrous bromine, strong acids and/or alkaline material.

Conditions to Avoid: See Fire and Explosion Section. SEE ADDITIONAL INFORMATION.

Hazardous Decomposition Products: See Fire and Explosion Section. SEE ADDITIONAL INFORMATION.

VI. ENVIRONMENTAL

Spill or leak procedures

NA

Waste Disposal Methods*

Used or unused product should be tested to determine hazard status and disposal requirements under federal, state, or local laws and regulations. Recycling of aluminum scrap is encouraged by the Aluminum Industry.

*Disposer must comply with Federal, State and Local disposal or discharge laws.

VII. ADDITIONAL INFORMATION

1. Halogen acids and sodium hydroxide in contact with aluminum may generate explosive mixtures of hydrogen.
2. Finely divided aluminum will form explosive mixtures in air. It will also form explosive mixtures in air in the presence of bromates, iodates, or ammonium nitrate.
3. When remelting aluminum scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitrate could cause an explosion. This applies to the collection of moisture in sow cavities as well. Moisture must be driven off prior to remelting.
4. Do not touch cast aluminum metal or heated aluminum product without knowing metal temperature. Aluminum experiences no color change during heating. If metal is hot and touched, burns can result.
5. Aluminum powder must be packaged and shipped as a Flammable Solid, UN1396.
6. Hard alloy ingots in the 2000 and 7000 series must be stress-relieved to prevent explosion when sawed.
7. The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone, nitrogen oxides, infra-red radiation and ultra-violet radiation.

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reported and the liver, kidneys and bone marrow may be injured by the presence of the metal.
Continued exposure to lower levels of cadmium has resulted in chronic poisoning characterized by irreversible lung damage and kidney damage. A single, high level exposure to cadmium can cause severe lung irritation which may be fatal. Cadmium is also a suspected human carcinogen.

Chromium -- In some workers, chromium compounds act as allergens and may cause dermatitis and may also produce pulmonary sensitization. Chromic acid and chromates have a direct corrosive effect on the skin and the mucous membranes of the upper respiratory tract. Although rare, there may be the possibility of skin and pulmonary sensitization.
IARC has determined that there is sufficient evidence of increased lung cancer among workers in the chromate-producing industry and possible chromium alloy workers. This determination is supported by sufficient evidence for carcinogenicity to animals and possible mutagenicity testing of Cr VI compounds.

Cobalt -- Cobalt has been reported as causing hypersensitization type dermatitis in individuals who are susceptible. Animal studies have shown that particulate cobalt is an acutely irritating substance and industrial exposures, possibly combined with small amounts of silica, are reported capable of producing serious pneumoconiosis which is initially of an insidious nature.

Copper -- Melting, grinding, cutting of copper may produce fumes or dust exposure and breathing these fumes or dust may present potentially significant health hazards. Fumes of copper may cause metal fume fever with flu-like symptoms and skin and hair discoloration. While industrial dermatitis has not been reported, keratinization of the hands and the soles of the feet has been reported. Systemically as well, copper dust and fume cause irritation of the upper respiratory tract, metallic taste in the mouth, and nausea.

Iron -- The inhalation of iron oxide fumes or dust may cause an apparent benign pneumoconiosis which is called siderosis. This disease is reported to be disabling, but makes x-ray diagnosis of other lung conditions difficult or impossible.

Lead -- Short term exposure: Lead is an accumulative poison. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include decreased physical fitness, fatigue, sleep disturbance, headache, aching bones and muscles, constipation, abdominal pains, and decreasing appetite. The effects are reversible and complete recovery is possible. Inhalation of large amounts of lead may lead to seizures, coma, and death.

Lead -- Long term exposure: Long term exposure can result in a buildup of lead in the body and more severe symptoms. These include anemia, pale skin, a blue line at the gum margin, decreased handgrip strength, abdominal pain, severe constipation, nausea, vomiting, and paralysis of the wrist joint. Prolonged exposure may also result in kidney damage. If the nervous system is affected, usually due to very high exposures, the resulting effects include severe headache, convulsions, coma, delirium, and death. Alcohol ingestion and physical exertion may bring on symptoms. Continued exposure can result in decreased fertility and/or increased chances of miscarriage or birth defects.

Manganese -- Chronic manganese poisoning may result from inhalation of dust or fume. The central nervous system is the chief site of the injury. Chronic manganese poisoning is not a fatal disease although it is extremely disabling. Some individuals may be hypersusceptible to manganese. Freshly formed manganese fume has caused fever and chills similar to metal fume fever.

Nickel -- The most common ailment arising from contact with nickel or its compounds is an allergic dermatitis known as "nickel itch" which usually occurs when the skin is moist. Generally nickel and most salts of nickel do not cause systemic poisoning, but nickel has been identified as a suspected carcinogen.

Silicon -- Accumulation in lungs may be responsible for benign pneumoconiosis, but is not considered to be responsible for pulmonary functional impairment or respiratory symptoms.

Tin -- The inhalation of inorganic tin fumes or dust may cause an apparent benign pneumoconiosis called stannosis which is reported not to be disabling.

Zinc (as Oxide) -- Zinc is very low in toxicity but inhalation of fumes may cause "metal fume fever." Onset of symptoms may be delayed 4-12 hours and include irritation of the nose, mouth and throat, cough, stomach pain, headache, nausea, vomiting, metallic taste, chills, fever, pains in the muscles and joints, thirst, bronchitis or pneumonia and a bluish tint to the skin. These symptoms go away in 24-48 hours and leave no effect.

Note: Antimony trioxide, beryllium, cadmium, chromium, cobalt-chromium alloy, lead and nickel have been identified as potential human carcinogens.

Emergency First Aid Procedures:

Eye Contact Flush well with running water to remove particulate. Get medical Attention.
Skin Contact Vacuum off excess dust. Wash well with soap and water.
Inhalation Remove to fresh air. Get medical attention.
Ingestion Seek medical attention if large quantities of material have been ingested.

SECTION VII. PRECAUTIONS FOR SAFE HANDLING OR USE

Steps to be Taken in Case Material is Released or Spilled: No special precautions are necessary for spills of bulk material. If large quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentration of airborne dust. If liquids (acids or bases) containing solubilized metal are spilled evacuate unprotected personnel from area. Absorb liquid by means of vermiculite, dry sand or similar material. Follow federal, state, and local regulations concerning the disposal of waste.

Waste Disposal Method: Dispose of in accordance with federal, state, and local regulations. Cleanup personnel should wear respirators and protective clothing. Ventilate area of release.

Precautions to be Taken in Handling and Storing: Store material away from incompatible materials and keep dust from sources of ignition.

Other Precautions: See all other sections of this MSDS.

SECTION VIII. CONTROL MEASURES

Respiratory Protection: If exposure above the PEL or TLV, NIOSH approved respirator for fume or dust, dependent upon the source of airborne contaminant.

Ventilation: Required if dust or fume created in handling or working on this material.

Local Exhaust: Required if dust or fume created in handling or working on this material.

Mechanical (general): As above to reduce airborne dust or fume levels.

Protective Gloves: Required for melt, grind, cut or weld operations. Select glove approved for the specific operation.

Eye Protection: Required for melt, grind, cut, or weld operations. Minimum requirement of safety glasses with side shields for these operations. Melting and welding may require special eye protection including face shields and specially tinted glass. Grinding operations may also require face shields.

Other Protective Clothing or Equipment: As required for the work done on or with the metal.

Work/Hygiene Practices: As required for the work done with lead bearing materials. Meet requirements of the OSHA lead standard where necessary. Always evaluate the jobs done on this product in accordance with OSHA or relevant state, federal, or local standards.

IMPORTANT

LIABILITY DISCLAIMER

The information contained in this Material Safety Data Sheet (MSDS) is believed to be correct as it was obtained from sources we believe are reliable. However, no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material, or the results to be obtained from the use thereof. User assumes all risks and liability of any use, processing or handling of any material, variations in methods, conditions and equipment used to store, handle, or process the material and hazards connected with the use of the material are solely the responsibility of the user and remain at his sole discretion.

Compliance with all applicable federal, state, and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe work place to examine all aspects of its operation and to determine if or where precautions, in addition to those described herein, are required.