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MATERIAL SAFETY DATA SHEET

TRADE NAME (Common Name Or Synonym)
ALUMINUM ALLOY

CHEMICAL NAME
Alloy Series 1000, 2000, 3000, 5000, 6000 and 7000

I. INGREDIENTS

Material Or Component	CAS Number	% Weight	EXPOSURE LIMITS OSHA PEL (mg/m³)		8 Hour TWA ACGIH TLV (mg/m³)		NTP Listed	IARC Listed
			DUST	FUME	DUST	FUME		
Base Metal Aluminum (Al)	7429-90-5	83.0-99.7	15	-	10	5	No	No
Alloying Elements								
Bismuth (B1)	7440-69-9	0.40-0.7	-	-	-	-	No	No
Boron (B)	7440-42-8	0.06 Max	-	15	-	10	No	No
Chromium (Cr)	7440-47-3	0.01-0.4	1.0	-	.5	-	Yes	Yes
Cobalt (Co)	7440-48-4	1.0-10.00	.1	-	.1	-	No	No
Copper(Cu)	7440-50-8	0.05-6.0	1.0	.1	1.0	.2	No	No
Iron (Fe)	7439-89.6	0.35-1.0	-	10	-	5	No	No
Lead (Pb)	7439-92-1	0.40-0.7	.05	.05	.15	.15	No	Yes
Magnesium (Mg)	1309-48-4	0.03-4.9		15		10	No	No
Manganese (Mn)	7439-96-5	0.02-1.5	5	5	5	1	No	No
Nickel (Ni)	7440-02-0	.3 Max	1.0	-	1.0	-	Yes	Yes
Nitric Oxide	10102-43-9	N/A	-	30	-	30	No	No
Nitrogen Dioxide	10102-44-0	N/A	-	9	-	1.8	No	No
Ozone	10028-15-6	N/A	-	.2	-	.2	No	No
Silicon (Si)	7440-21-3	0.25-1.2	15	-	10	-	No	No
Tin (Sn)	7740-31-5	1.0-10.00	2.0	2.0	2.0	2.0	No	No
Titanium (Ti)	7440-32-6	0.02-0.2	-	15.0	-	10	No	No
Vandium (V)	7440-62-2	0.05 Max	.5	.1	.05	.05	No	No
Zinc (Zn)	1314-13-2	0.05-6.1	-	5	10	5.	No	No

NOTE: Aluminum alloys will be comprised of various combinations of the elements shown above. In addition, other alloying elements may be present in minute quantities. No permissible exposure limits (PEL) or threshold limit values (TLV) exist for aluminum alloys. Values shown are applicable to component elements.

II. PHYSICAL DATA

MATERIAL IS (At Normal Conditions)	APPEARANCE AND ODOR	% VOLATILE BY VOLUME	VAPOR DENSITY
( ) LIQUID (X) SOLID ( ) GAS ( ) OTHER	SILVERY-GREY, ODORLESS	N/A	N/A

ACIDITY/ALKALINITY	Melting Point Approx. 900-1200°F Boiling Point N/A °F	Specific Gravity (H^2O = 1) Approx. 2.5-2.9 Solubility in water (% by weight) NEGLIGIBLE	VAPOR PRESSURE (MM Hg AT 20°C)
pH = N/A			N/A

III. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION. Appropriate dust/mist/fume respirator should be used to avoid excessive inhalation of particulates. If exposure limits are reached or exceeded, use NIOSH approved equipment.	HANDS, ARMS AND BODY. Protective gloves should be worn as required for welding, burning or handling operations.
EYES AND FACE. Safety glasses should be worn when grinding or cutting. Face shields should be worn when welding, cutting or burning.	OTHER CLOTHING AND EQUIPMENT. As required depending on operations and safety codes.

IV. EMERGENCY MEDICAL PROCEDURES

INHALATION: Remove to fresh air; if condition continues, consult a physician.
EYE CONTACT: Flush thoroughly with running water to remove particulate; obtain medical attention.
SKIN CONTACT: Remove particles by washing thoroughly with soap and water. Seek medical attention if condition persists.
INGESTION: If significant amounts of metal are ingested, consult physician.

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 fumes 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 concern 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. The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone nitrogen oxides, infrared radiation and ultraviolet radiation.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: See Product Ingredients Section I

FIRE & EXPLOSION

FLASH POINT	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS IN AIR	EXTINGUISHING MEDIA
N/A °F	N/A	Lower N/A % Upper N/A %	For molten aluminum use dry powder or sand.

DAMP ALUMINUM DUST MAY SPONTANEOUSLY HEAT WITH LIBERATION OF HYDROGEN TO FORM EXPLOSIVE AIR MIXTURES. **SEE ADDITIONAL INFORMATION**

EXTINGUISHING MEDIA NOT TO BE USED
Do not use water or halogen agents on molten aluminum

REACTIVITY

STABILITY	INCOMPATIBILITY (MATERIALS TO AVOID)
(X) Stable ( ) Unstable	Reacts with strong acids to form hydrogen gas.

CONDITIONS TO AVOID: Aluminum products under normal conditions are stable during use, storage and transportation. Halogen acids and sodium hydroxide in contact with aluminum may generate explosive mixtures of hydrogen. Finely divided aluminum, such as small chips and fines, will form explosive mixtures in air. It also will form explosive mixtures in air in the presence of bromates, iodates, or ammonium nitrate. Strong oxidizers cause violent reactions with considerable heat generation.

VI. ENVIRONMENTAL

SPILL OR LEAK PROCEDURES

Fine turnings and small chips should be swept or vacuumed. Scrap metal can be reclaimed for re-use.

WASTE DISPOSAL METHOD*

Used or unused product should be disposed of in accordance with Federal, State or Local Laws and Regulations.
*Disposer must comply with Federal, State and Local disposal or discharge laws.

VII. ADDITIONAL INFORMATION

1. Acids and bases in contact with aluminum may generate explosive mixtures with 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.
6. Hard alloy ingots in the 2000 and 7000 series must be stress-relieved to prevent explosion (or violent cracking) when sawed.
7. The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone, nitrogen oxides, infra-red radiation and ultra-violet radiation, in addition to metal fume.
8. Some aluminum scrap may be contaminated with oil at levels greater than 1%. Melting of aluminum scrap may generate oil vapors which are irritating to the eyes and upper respiratory tract. Prolonged or repeated skin contact with oil may cause skin irritation.
9. Vapor degreaser must be properly maintained to limit the accumulation of aluminum fines. The accumulation of aluminum fines could result in a potential degreaser fire or explosion.
10. Beryllium, Chromium, Lead, Cadmium and Nickel, listed on California's Proposition 65 list of "Chemicals Known to the State to Cause Cancer or Reproductive Harm", may exist in this product at the following maximum concentrations by weight - Beryllium (0.05%), Chromium (0.10%), Lead(0.05%), Cadmium (0.05%) and Nickel (1.20%).

DISCLAIMER

The information in this MSDS was obtained from sources which we believe are reliable, however, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.