

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/m ³) | ACGIH TLV (mg/m ³) |
| Base Metal Aluminum (Al) | 7429-90-5 | 90-99.7 | Not Established | 10.0 Metal Dust & Oxide 5.0 Welded Fume |
| Alloying Elements | | | | |
| Chromium (Cr) | 7440-47-3 | <0.01-0.4 | 1.0 Chrome Metal | 0.5 Chrome Metal |
| Copper (Cu) | 7440-50-8 | <0.05-6.0 | 0.1 Fume, 1.0 Dust | 0.2 Fume, 1.0 Dust |
| Iron (Fe) | 1309-37-1 | <0.35-1.0 | 10 Oxide Fume | 5 Oxide Fume |
| Magnesium (Mg) | 1309-48-4 | <0.03-4.9 | 15 Oxide Fume | 10 Oxide Fume |
| Manganese (Mn) | 7439-96-5 | <0.02-1.5 | 5c Dust, 5c Fume | 5c Dust, 1 Fume |
| Silicon (Si) | 7440-21-3 | <0.25-1.2 | Not Established | 10 Total Dust |
| Titanium (Ti) | 7440-32-6 | <0.02-0.2 | 15 Ti Dioxide | 10 Ti Dioxide |
| Zinc (Zn) | 1314-13-2 | <0.05-6.1 | 5 Oxide Fume | 10 Dust, 5 Fume |
| Bismuth (Bi) | 7440-69-9 | <0.40-0.7 | Not Established | Not Established |
| Boron (B) | 7440-42-8 | 0.06 max | 15 Oxide Fume | 10 Oxide Fume |
| Lead (Pb) | 7439-92-1 | <0.40-0.7 | 0.05 Dust & Fume | 0.15 Dust & Fume |
| Vanadium (V) | 7440-62-2 | 0.05 max | 0.05c Dust, 0.1c Fume | 0.05 Dust & 0.05 Fume |

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

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| MATERIAL IS (At Normal Conditions) <input type="checkbox"/> LIQUID <input checked="" type="checkbox"/> SOLID <input type="checkbox"/> GAS <input type="checkbox"/> OTHER | APPEARANCE AND ODOR Silvery-Grey, Odorless | % VOLATILE BY VOLUME: N/A | VAPOR DENSITY N/A |
| ACIDITY/ALKALINITY pH = N/A | Melting Point 900-1200 °F Boiling Point N/A °F | Specific Gravity (H ₂ O = 1) Approx. 2.5-2.9 Solubility in water (% by weight) Negligible | VAPOR PRESSURE (mm Hg at 20°C) N/A |

III. PERSONAL PROTECTIVE EQUIPMENT

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| RESPIRATORY PROTECTION Appropriate respirator depending upon potential airborne contaminants and their concentrations. If exposure limits are reached or exceeded, use NIOSH approved equipment. | HANDS, ARMS AND BODY Appropriate gloves to prevent abrasions. |
| EYES AND FACE Safety glasses or shield for selected operations | OTHER CLOTHING AND EQUIPMENT As required depending on operations and safety codes. |

IV. EMERGENCY MEDICAL PROCEDURES

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

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| Health | <p>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 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. The welding of aluminum alloys may generate carbon monoxide, carbon dioxide, ozone nitrogen oxides, infrared radiation and ultraviolet radiation.</p> <p>OCCUPATIONAL EXPOSURE LIMITES: See Product Ingredients Section I.</p> | | | |
| Fire and Explosion | FLASH POINT | AUTO IGNITION TEMPERATURE | FLAMMABLE LIMITS IN AIR | EXTINGUISHING MEDIA |
| | N/A °F | N/A °F | Lower N/A % Upper N/A % | For molten aluminum use dry power or sand. |
| | FIRE AND EXPLOSION HAZARDS Aluminum tubular products do not present fire or explosion hazards under normal conditions. | | EXTINGUISHING MEDIA NOT TO BE USED Do not use water or halogen agents on molten aluminum. | |
| Reactivity | STABILITY ■ Stable □ Unstable | INCOMPATIBILITY (MATERIALS TO AVOID) 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

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| <p>SPILL OR LEAK PROCEDURES Fine turnings and small chips should be swept or vacuumed. Scrap metal can be reclaimed for reuse.</p> |
| <p>WASTE DISPOSAL METHOD* Used or unused product should be disposed of in accordance with Federal, State or Local Laws and Regulations.</p> <p style="text-align: center; font-size: small;">*Disposer must comply with Federal, State and Local disposal or discharge laws.</p> |

VII. ADDITIONAL INFORMATION

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| <p>Do not touch cast aluminum metal or heated aluminum product without knowing metal temperature. Aluminum experiences no color change during heating. Burns could result. Series 2000 and 7000 alloys should be stress relieved prior to sawing or cutting to avoid cracking. Aluminum power must be packaged and shipped as a flammable solid. Minimize and control operations producing dust and fume.</p> |
| <p>DISCLAIMER</p> <p>The information in this MSDS was obtained from sources which we believe are reliable, however, the information is provided without any representation or warranty, express or implied, regarding the accuracy or correctness.</p> <p>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.</p> |