UNIFIEDALLOYS

ALUMINUM ALLOY – MATERIAL SAFETY DATA SHEET

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1. HAZARDOUS INGREDIENTS

			Exposure Limits	
Component (*)	**CAS Number**	**% Weight**	**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 and oxide
Alloying Elements				5.0 welded fume
Chromium (Cr)	7440-47-3	<0.01 - 0.4	1.0 chrome metal	0.5 chrome metal
Copper (Cu)	7440-50-8	<0.06 - 6.0	0.1 fume 1.0 dust	0.2 fume 1.0 dust
Iron (Fe)	1309-37-7	<0.35 - 1.0	10 oxide fume	5 oxide fume
Magnesium (Mg)	7439-48-4	<0.03 - 4.0	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

2. PREPARATION INFORMATION

Prepared By: **UnifiedAlloys**
Telephone: (780) 468-5656
Note: **Contact Supplier (Quality Department) for additional information**

Preparation Date: January 1, 2010

3. PRODUCT / COMPANY INFORMATION

Importer / Supplier / Distributor:

UnifiedAlloys
8835 – 50th Avenue
Edmonton, Alberta CANADA
T6E 5H4
Emergency Phone #: (780) 468-5656 (on-call service)

The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond knowledge. For this and other reasons, we do not assume responsibility and 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.

4. PHYSICAL DATA

Physical State: Solid
Odor: N/A
Evaporation Rate: N/A
Boiling Point: N/A
Melting Point: 900 – 1200 degrees Celsius
PH: N/A
Solubility in Water: N/A
Vapor Pressure: N/A
Density: 2.5 – 2.9
Appearance: Silver Grey
Volatility: N/A
Specific Gravity: (H20 = 1): 2.5 – 2.9
Coefficient of water/oil distribution: Negligible
Odor Threshold: N/A
Freezing Point: N/A

5. FIRE / EXPLOSION HAZARD

1. Conditions of Flammability: Steel products (Copper Metal) does not present fire or explosion hazards under normal conditions. Fine metal particles such as those produced in grinding or sawing can burn. High concentrations of metal filings may present an explosion hazard.
2. Means of extinction: For molten metal use dry powder or sand. Do NOT use water on molten metals.
3. Flashpoint and method of determination: N/A (under normal conditions)
4/5. Upper and Lower flammable Limit: N/A (under normal conditions)
6. Auto-ignition temperature: N/A (under normal conditions)
7. Hazardous Combustion Products: N/A (under normal conditions)
8. Explosion Data: sensitivity to mechanical impact: N/A (under normal conditions)
9. Explosion Data: sensitivity to static discharge: N/A (under normal conditions)

6. REACTIVITY DATA

Chemical Stability: STABLE (under normal conditions of use and storage)
Conditions of Reactivity: HYDROGEN GAS
Hazardous Decomposition Products: 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.
Incompatibilities: Reacts with strong acids to form hydrogen gas.

7. TOXICOLOGICAL PROPERTIES

Effects of Acute Exposure to Material:
In standard operations, including melting, cutting and grinding, aluminum alloys present a low health risk by inhalation and are usually considered a nuisance dust.

Effects of Acute Chronic Exposure to Material:
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. 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, ozone, nitrogen oxides, infrared radiation, and ultraviolet radiation.

Route of Entry:
Prolonged skin contact with coated steel may cause skin irritation in sensitive individuals. Inhalation of metal particulate or elemental oxide fumes generated during welding, burning, grinding or machining may pose acute or chronic health effects.

Irritancy of Material: N/A
Sensitization to Material: N/A
Mutagenicity of Material: N/A
Reproductive Effects: N/A
Teratogenicity of Material: N/A
Synergistic Materials: N/A
Carcinogenicity of Material: N/A

IARC lists certain hexavalent chromium compounds under its group 1 category - “Confirmed Human Carcinogen.”
IARC lists nickel and certain nickel compounds under its group 2A category – “Suspected Human Carcinogen.”

NOTE:
Iron containing welding fumes has an exposure limit of 5 mg/m3 (ACGIH – TLV’s 1988-89). Welding fumes may also contain contaminants from fluxes or welding consumables.

8. PREVENTATIVE MEASURES

Personal Protective Equipment: Dependant upon processes being performed on material. Each operator must be addressed for suitable equipment. All protective equipment is recommended during welding, burning, and handling.
Gloves: Protective gloves should be worn during welding, burning or handling operations.
Clothing: As required dependent on the operations and local welding codes.
Respiratory: NIOSH / MSHA approved dust and fume respirator should be used to avoid excessive inhalation of particles when exposure exceeds TLV's.
Footwear: CSA Z195-02 Steel Toed, safety shoes.
Eye: Safety glasses, goggles or face shield should be worn as required by exposure.
Other: With molten metals, use full body cover clothing, including gloves, eyewear and footwear suitably treated to prevent burns.

Engineering Controls (e.g. ventilation, enclosures, specify)

Leak and Spill Procedures: Solid metal does not pose any problems. Dust spills should be cleaned up avoiding dust generation. Collect and recycle to process. Wash down with water if in contact with acids.
Waste Disposal: Recover. Follow applicable regulations. Dispose of in compliance with local regulations.
Storage Requirements: Store away from corrosive chemicals.
Special Shipping Information: N/A

9. FIRST AID MEASURES

Inhalation: Move to fresh air. If condition continues, consult a physician.
Ingestion: Rare in industry. If significant amount of metal is ingested, consult a physician.
Eyes: Flush thoroughly with water to remove particulate; obtain medical attention.
Skin Contact: Remove particles by washing thoroughly with soap and water. Seek medical attention if condition persists.
Notes: Respiratory disorders may be aggravated by exposure to metallic and/or organic/inorganic coating dusts or fumes. Consult a Physician if condition persists.
Do not induce vomiting or give liquids to an unconscious person.