Section 1: Product and Company Identification

Product Identifier: Aluminum Filler Metals and Welding Rods
Product Use: Welding filler; brazing filler on aluminum based metals
Item Code: (ER) 4043, 5356, 5554
Supplier Name: KT Industries, Inc.
Supplier Address: 3112 Northwest Blvd Sheldon, IA 51201
Supplier Web Address: www.KTIndustries.net
Supplier Phone: 712-324-5361
Emergency Phone: 712-324-5361

Section 2: Hazard Identification

Classification: Not classified
Label Elements: Not applicable
Other Hazards: Arc rays can injure eyes and burn skin. Welding arc and sparks can ignite combustibles and flammable materials. Overexposure to welding fumes and gases can be hazardous. The welding fumes produced from this welding electrode may contain the following: Carbon Dioxide, Carbon Monoxide, Nitrogen Dioxide, Ozone.

Section 3: Composition/Information on Hazardous Ingredients

HAZARDOUS INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH TLV	APPROXIMATE CONCENTRATION (%)
Aluminum (Al)	7429-90-5	15 (total dust), 5 (Resp)	X10 (dust), 5 (Resp)	Balance
Chromium (Cr) (*)	7440-47-3	1 (metal), 0.5 (Cr III), 0.05 (Cr Vi)	0.5 (metal), 0.5 (Cr III), 0.05 (Cr VI)	0.35
Copper (Cu)	7440-50-8	1 (dust), 0.1 (fume)	1 (dust), 0.2 (fume)	6.8
Iron (Fe) (limits as oxide fume)	7439-89-6	10	5	0.95
Magnesium (Mg)	7439-95-4	15 (total particulate)	10	5.5
Manganese (Mn) (limits as fume)	7439-96-5	1, 5*, 3.0**	0.2	1.0
Silicon (Si)	7440-21-3	15 (dust), 5 (Resp)	10	13.0
Beryllium (Be)	7440-41-7	0.002 (TWA)	0.002 (TWA)	0.0003
Titanium (Ti) Oxide dust	7440-32-6	15 (total particulate), 5 (Resp)	10	0.20

Zinc (Zn) Fume	7440-66-6	5	5	0.30

Single % are maximum; complete ingredients can be found on manufacturer's website or data sheets. (*) water soluble CR III & VI

Section 4: First-aid Measures

Inhalation: Inhalation may be the most common cause of overexposure due to the welding fumes. Large amounts of welding fumes will cause irritation of the nose, eyes and skin. Move from the area that has any fumes to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and transport to nearest medical facility for additional treatment.
Ingestion: Not an expected route of exposure. Rinse month completely and drink a cup of water if conscious; obtain medical assistance when needed.
Eye Contact: If arc flash or burns occur, obtain medical assistance. Large exposure to welding fumes may cause irritation to the eyes. Immediately flush upper and lower eyelids with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling persists, visit nearest medical facility for additional treatment.
Skin Contact: Large exposure to welding fumes may cause irritation to skin. If burns occur, flush with clean cool water for 15 minutes; obtain medical assistance when needed.
NOTE: In all severe cases, contact physician immediately. Local telephone operators can provide number of regional poison control centre.

Section 5: Fire-fighting Measures

Flammable: No
Means of Extinction: Not applicable
Auto-ignition Temperature: Data not available
Hazardous Combustion Products: Data not available
Explosion Data Sensitivity to Mechanical Impact: Data not available
Explosion Data Sensitivity to Static Discharge: Data not available
Special Equipment: Not applicable
Precautions for Fire Fighters: This product as shipped is non-flammable; however, fine chips and dust may increase the explosion rating under certain heat and other ignition hazards. Hydrogen gas and irritating fumes may form when involved in a fire or if decomposing is caused from water, alcohol or sodium hydroxides. Do not use water with any molten metals and use self-contained safety clothing/equipment in case of fires.

Section 6: Accidental Release Measures

Protection Equipment: Gloves may be worn while handling aluminum.
Emergency Procedures: This product is in rod and wire form and has no hazards as shipped.
Leak or Spill Procedure: If spilled, the product may be picked up (wearing gloves) and placed back into the container. If metals become molten, contain with sand and allow to return back into a solid for recycle as scrap.

Section 7: Handling and Storage

Handling Procedures and Equipment: Proper protective gloves can be worn while handling product. During all operations, do not eat or drink while handling and ensure proper ventilation while welding, brazing or processing.

Storage Requirements: Store in a cool, dry and low humid location.
Incompatibilities: None known

Section 8: Exposure Controls/Personal Protection

Exposure Limits:

INGREDIENTS	CANADA TWA VALUE (MG/M3)	CANADA TWA VALUE (MG/M3)	CANADA TWA VALUE (MG/M3)	CANADA TWA VALUE (MG/M3)	CANADA TWA VALUE (MG/M3)	EXPOSURE LIMITS (MG/M3)	EXPOSURE LIMITS (MG/M3)
	(A)	(BC)	(M)	(O)	(Q)	OSHA PEL	ACGIH TLV
Aluminum (Al)	5(p), 10(dust)	1(Resp)	1(RF)	1(RF)	10, 5(WF)	15(total dust), 5(Resp)	10(dust), 1(Resp)
Chromium (Cr)	0.5		0.5, 0.01 (Cr VI)		0.5	1(metal), 0.5 (Cr III), 0.005 (Cr VI)	0.5(metal), 0.5 (Cr III), 0.05 (Cr VI)
Copper (Cu)		1(DM), 0.2(fume)		0.2(fume)	1(DM), 0.2(fume)	1(dust), 0.1(fume)	1(dust), 0.2(fume)
Iron (Fe) [oxide fume]	5(Resp)	10.0(STEL), 5(FD), 3(RF), 10.0(TD)	5(FD)	5(RF)	5(FD), 10.0(TD), 10(fume)	10	5
Magnesium (Mg)	10(oxide fume)	(box) 10.0(STEL), 3, 10.0(IU)		10.0(IF)	10(fume)	15 (total particulate)	10
Manganese (Mn) [fume]		.2	0.1(IF), 0.02(RF)	.2	3(fume) (STEL), 5(dust), 1(fume)	1, 5(CL), 3.0(STEL)	0.2
Silicon (Si)					10.0(TD)	15(dust), 5(Resp)	10
Beryllium (Be)						0.002 (TWA)	0.002 (TWA)
Titanium (Ti) Oxide Dust						15 (total particulate), 5(Resp)	10
Zirconium		5, 10.0(STEL)			5, 10.0(STEL)		
Zinc (Zn) Fume		2(RESP), 10.0(STEL) (Resp)		2(RF), 10.0(STEL) (RF)	5, 10.0(STEL), 10.0(TD)	5	5

Notes: (A) Canada Alberta OLEs –Occupational Health & Safety Code Schedule 1 table 2; (BC) Canada British Columbia OLEs –Occupational Exposure Limits for Chemical Substance, Occupational Health & Safety Regulation 296/97, as amended; (M) Canada Manitoba OLEs – Safety Regulation 217/2006, The workplace Safety and Health Act(MM) Respirable fraction for(M); (O) Canada Ontario OLEs – Control of Exposure to Biological or Chemical Agents; (Q) Canada Alberta OLEs – Ministry of Labor Regulation Respecting the Quality of the Work Environment; (p) Pyrophoric Powder; (CL) Ceiling Limit; (STEL) Short Term Exposure Limit; (IF) Inhalable Fraction; (FD) Fume and Dust; (TD) ;Total Dust; (box) Respirable Dust and/or Fume on Entire Box; (IU) Inhalable Fume; (Resp) Respirable; (RF)Respirable Fraction; (WF) Welding Fume; (DM) Dust and Mist

Engineering Controls: Ensure proper ventilation and respiratory protection is used when welding, brazing or processing. Respiratory protection is recommended and information may be found regarding the OSHA STANDARDS (29 CRF 1910.134), as well as CSA Standards Z94.4, along with many other safety standards.
Personal Protective Equipment: Use proper welding helmet or safety shield, as well as clothing and gloves, as required for job duties. Do not eat or drink while using these products and wash hands after use.

Section 9: Physical and Chemical Properties

Physical State: Solid
Odour and Appearance: Odourless silver metal
Odour Threshold (ppm): Not applicable
pH: Not applicable
Melting Point: 1218°F (658°C)
Freezing Point: Not applicable
Boiling Point: 4521°F (2494°C)
Flashpoint: Not applicable
Upper Flammable Limit (% by volume): Not applicable
Lower Flammable Limit (% by volume): Not applicable

Section 10: Stability and Reactivity

Chemical Stability: Stable
Possible Hazardous Reactions: During welding, brazing and processing: fumes, dust and gas decomposition may form.
Conditions to Avoid: Avoid extreme temperatures
Materials to Avoid (Incompatibilities): Strong acids; strong bases; strong oxidizers; metal oxides; alcohols; hydrocarbons; halogens
Conditions of Reactivity: Not applicable
Hazardous Decomposition By-Products: Not available
Hazardous Polymerization: Does not occur

Section 11: Toxicological Information

Skin Contact: Arc rays can burn skin; skin cancer has been reported.
Skin Absorption: Not applicable
Eye Contact: Arc rays can injure eyes.
Inhalation: Inhalation is the most likely route of exposure; refer to “Effects of Acute Exposure” and “Effects of Chronic Exposure” below.

Ingestion: Unlikely due to form of product.
Effects of Acute Exposure: Overexposure or inhalation of large amounts of welding fumes may cause symptoms such as metal fume fever, dizziness, nausea, dryness and irritation of your nose, throat or eyes as well as lung disease.
Effects of Chronic Exposure: Overexposure or prolonged inhalation of large amounts of welding fumes with chromium compounds may cause cancer. Other overexposure or prolonged inhalation of large amounts of welding fumes symptoms may include damage to the central nervous system, respiratory system, skin and could affect organs such as pancreas and liver.
Irritancy of Product: Not available Sensitization to Product: Not available
Carcinogenicity: OSHA (29 CFR 1910.1200) lists Nickel and Chromium as possible carcinogens, welding fumes as possible carcinogens (2B), and hexavalent chromium as carcinogenic to humans (1) per IARC Monographs. Hexavalent chromium confirmed as human carcinogen (A1) per ACGIH and US NTP Report on Carcinogen
Reproductive Effects: Not available Respiratory Sensitization: Not available
Toxicological Data: Acute oral (Rat) – Manganese (LD50): 9000 mg/kg; Silicon (LD50): 3160 mg/kg

Section 12: Ecological Information

Aquatic and Terrestrial Toxicity: Not available
Persistence and Degradability: Not available
Bio accumulative Potential: Not available
Soil Mobility: Not available

Section 13: Disposal Considerations

NOTE: Always dispose of waste in accordance with local, provincial and federal regulations.
Safe Handling: Gloves can be worn while handling discarded or unwanted product.
Methods of Disposal: Recycle when possible. Do not allow to enter drains, sewers or watercourses. Discard any unwanted product, residues, containers, or liners in a suitable disposal container in an environmentally acceptable manner, as required by relevant legislation.

Section 14: Transportation Information

This material is not considered as a dangerous good per transportation regulations.

Section 15: Regulatory Information

Canadian Controlled Products
Regulations: This product has been classified according to the hazard criteria of the Canada Controlled Products Regulations, Section 33.
California – Permissible Exposure Limits for Chemical Contaminants:
Aluminum, Aluminum Oxide, Chromium, Copper, Magnesium, Magnesium Oxide, Manganese, Silicon, Titanium, Vanadium, Iron, Iron Oxide, Zirconium, Zinc, Zinc Oxide California Proposition 65: Hexavalent chromium compounds listed in the following –a Carcinogens & Reproductive Toxic Listed Substance, Carcinogenic Substance 2/27/1987, Developmental Toxin 12/19/2008, Female Reproductive Toxin 12/19/2008, Male Reproductive Toxin 12/19/2008
Massachusetts – Substance Act:

Aluminum, Aluminum Oxide, Chromium, Copper, Magnesium, Magnesium Oxide, Manganese, Silicon, Vanadium, Iron Oxide, Zirconium, Zinc, Zinc Oxide
New Jersey – Right to Know Hazardous Substance List:
Aluminum, Aluminum Oxide, Chromium, Copper, Iron Oxide, Hexavalent Chromium compounds, Magnesium, Magnesium Oxide, Manganese, Silicon, Titanium, Titanium Oxide, Vanadium, Zinc, Zinc Oxide, Zirconium
Pennsylvania – Hazardous Substance List:
Aluminum, Aluminum oxide, Chromium, Copper, Iron oxide, Hexavalent chromium compounds, Iron oxide, Magnesium, Manganese, Silicon, Welding Fume, Vanadium, Zinc oxide and Zirconium

Section 16: Other Information

Date of Last Revision: 19 January 2016 Preparation Date: 10 July 2015
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