



NATIONAL STANDARD

Safety Data Sheet
 Aluminum Filler Metals and Welding Rods
 SDS Number 01 Prepared 5-2015
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NATIONAL STANDARD

Section 1 – COMPANY AND PRODUCT IDENTIFICATION

Supplier: National Standard, 3602 N. Perkins Rd., Stillwater, Oklahoma 74075 USA

Recommended: Welding filler, Brazing filler on Aluminum base metals

Phone: 1-800-777-1618 Fax: 1-405-372-7954 Specification: AWS A5.10

Product Trade Name/Classification of ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654

Section 2 – HAZARDS IDENTIFICATION

Emergency Overview –product as shipped consists of a solid silvery metallic wire or rods which are non-reactive, nonflammable and has no immediate health hazard. In a fire product can produce metal oxides fumes and personal protective equipment may be required. During welding, Brazing and processing may form fumes, dust and gas decomposition. **Ingestion** is not a common hazard with these solid rods. **Eyes & skin**= Fumes or dust may cause irritation and hot materials can cause thermal burns. **Inhalation** Overexposure to fumes and dust may cause respiratory irritation, pulmonary issues as well metal fume fever. Prolonged inhalation above safe levels of chromium may cause cancer. Chronic inhalation of fumes or dust may cause respiratory irritation, bronchitis, asthma, siderosis or even lung damage. Manganese and its compounds may cause damage or affect the brain and central nervous systems above safe exposure limits.

Single % are maximum; complete ingredients can be found on our website or data sheets. (1) water soluble Cr III & VI

Section 3 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	%	EINECS#	CAS No.	Present in the following products
Aluminum (Al)	Bal.	231-072-3	7429-90-5	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Chromium (Cr) (1)	0.35	231-157-5	7440-47-3	ER/R: 5183, 5356, 5554, 5556, 5654
Copper (Cu)	6.8	231-159-6	7440-50-8	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Iron (Fe) (limits as oxide fume)	0.95	231-096-4	7439-89-6	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Magnesium (Mg)	5.5	231-104-6	7439-95-4	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Manganese (Mn) (limits as fume)	1.0	231-105-1	7439-96-5	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Silicon (Si)	13.0	231-130-8	7440-21-3	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Beryllium (Be)	0.0003	231-150-7	7440-41-7	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Titanium (Ti) Oxide dust	0.20	231-142-3	7440-32-6	ER/R: 1050A,4043, 4047(718), 5183, 5356, 5554, 5556, 5654
Zirconium (2)	0.25	231-176-9	7440-67-7	ER/R: 2319
Zinc (Zn) Fume	0.30	231-175-3	7440-66-6	ER/R: 1050A,1100, 2319, 4043, 4047(718), 5183, 5356, 5554, 5556, 5654

Single % are maximum. (1) water soluble Cr III & VI

Section 4 –FIRST AID Emergency Overview –product as shipped consists of a solid silvery metallic wire or rods which are non-reactive, nonflammable and has no immediate health hazard. In fire product can produce metal oxides fumes and personal protective equipment may be required.

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 provide clean fresh air and apply artificial respiration/obtain medical assistance when needed. **Eye Contact;** if arc flash or burns occurs obtain medical assistance. With fumes or dust flush with clean water for at least 15 minutes obtain medical assistance when needed. **Skin Contact;** if arc flash or burns occurs flush with clean cool water for at least 15 minutes obtain medical assistance when needed. **Ingestion;** Rinse mouth completely and drink a cup of water if conscious obtain medical assistance when needed. General; move to clean fresh air and supply this data sheet to your medical assistance.

Section 5 FIRE FIGHTING MEASURES

This product as shipped in 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 alcohols or sodium hydroxides. Do not use water with any molten metals and use self-contained and safety clothing/equipment in case of fires.

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Section 6 – ACCIDENTAL RELEASE MEASURES

These solid aluminum products are in rod and wire form and has no hazards as shipped, and if spilled may be picked up wearing gloves and placed back in the container. Personnel protection and environmental data can be found in section 8 & 13. If metals become molten contain with sand and allow to return back into a solid for recycle as a scrap.

Section 7 – HANDLING and STORAGE MEASURES

As always welding items shall be stored in a cool low humid location and kept dry wearing gloves with ventilation or personal protection as required. During all operations do not eat or drink while handling and ensure proper ventilation when welding, brazing or processing. Ensure that all Federal Occupational Safety and Health guidelines are followed as well as well as your company’s safety guidelines. Read and understand ANSI Z49.1.

Section 8– PERSONAL PROTECTION / EXPOSURE DATA

Ingredients	Canada TWA Value (mg/m ³)					Exposure Limit (mg/m ³)	
	(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) 0.2fume	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)	0.2		0.1 ^(IF) 0.02 ^(RF)	0.2	3fume ^(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 ⁽²⁾	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

^(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

Use welding alloy with proper and adequate ventilation/respiratory protection to maintain safe limits listed in this document. Respiratory protection is recommended and information may be found the OSHA STANDARDS (29 CFR 1910.134) as well as CSA Standards Z94.4 along with many other safety standards. Use proper welding helmet or safety shields and also welding gloves and clothing as needed for job duties. Do not eat or drink while using these products and wash hands after use.

Section 9 –PHYSICAL / CHEMICAL DATA

These solid order-less rods has a silver metal appearance with a melting point of about 1218f (658c) and are insoluble in water
Not applicable or available for the following: Odor Threshold / pH / Flash Point / Evaporation Rate / Flammability (Solid, Gas) / Upper & Lower Flammability or Explosive Limits: Vapor Pressure & Density / Relative Density / Solubility(water/other) / Partition coefficient (n-octanol/water) / Auto-ignition Decomposition temperature
Aluminum data: BOILING POINT: 4521°F(2494°C) FREEZING/MELTING POINT:1220°F(660 °C) SPECIFIC GRAVITY(water = 1): 2.7

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Section 10 – STABILITY / REACTIVITY DATA

This product with normal and proper storage will be stable. During welding, Brazing and processing may form fumes, dust and gas decomposition. Avoid extreme temperatures and incompatible materials such as some of the following: Strong Acids, strong bases, strong oxidizers, metal oxides, alcohols, hydrocarbons and halogens.

As always welding items shall be stored in a cool low humid location and kept dry. During all operations do not eat or drink while handling and ensure proper ventilation when welding, brazing or processing. Ensure that all Federal Occupational Safety and Health guidelines are followed as well as well as your company's safety guidelines. Read and understand ANSI Z49.1.

Section 11 – TOXIOLOGICAL DATA

Acute oral(Rat): Manganese: (LD50): 9000 mg/kg. Silicon: LD50): 3160 mg/kg

Acute effects: 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 other lung disease.

Chronic effects: 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 related may include damage to the central nervous system, respiratory system, skin, brain and could affect organs such as pancreas and liver

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 human (1) per IARC Monographs. Overall Evaluation. Hexavalent chromium confirmed as human carcinogen (A1) per ACGIH AND us NTP Report on Carcinogen

California Proposition 65

These products may contain or produces chemicals known to the State of California to cause cancer, and/or birth defects (or other reproductive harm).

(Health and Safety Code section 25249.5 et seq.)

Section 12 – ECOLOGICAL DATA

Ecological; The components and compounds of these products should not cause any adverse effects and products not biodegradable. Avoid product exposure to groundwater and soil to avoid contamination.

Section 13 – DISPOSAL DATA

Recycle when possible. Discard any un-wanted product, residues, containers, or liners in a suitable disposal container in an environmentally acceptable manner approved by Federal, State and Local regulations

Section 14 – TRANSPORT DATA

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

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Section 15 –REGULATORY DATA

ALL components are on: U.S. TSCA INVENTORY STATUS, CANADIAN DOMESTIC SUBSTANCE LIST and EUROPEAN COMMUNITY Core Inventory ; **US EPCRA/SARA Title III 313 Toxic Chemicals** The following metallic components are listed as SARA 313 “Toxic Chemicals” and potential subject to annual SARA 313 reporting. See Section III for weight percent. Ingredient & Disclosure threshold: Aluminum, Chromium, Copper, Manganese, Vanadium, Zinc all @ 1.0% de minimis concentration: Hexavalent chromium compounds 0.1% de minimis concentration N900; Zinc oxide 1.0% de minimis concentration N982; Defined as a HAZARDOUS CHEMICAL by OSHA Hazard Communication Standard – 29CFR 1910.1200. **Clean Air Act 112 Hazardous Air Pollutants** list has Chromium and Manganese; **SARA311/312** listed as a HAZARDOUS CHEMICAL **Superfund and Reauthorization Act & the Emergency Planning and Community Right-To-Know Act of 1986;** Immediate (Acute) In use: Immediate &

CANADIAN Regulations; WHMIS status is listed as Controlled; **CLASSIFICATION** of D2A –Other Toxic Effects-VERY TOXIC & D2B –Other Toxic Effects- TOXIC

WHMIS labeling



Inventory Status:
Domestic Substance List complies in Canada,
Toxic Substance List complies in United States & Puerto Rico
Non-Domestic Substance List in Canada – has components not listed or exempt

These products may contain or produces chemicals known to the State of California to cause cancer, and/or birth defects (or other reproductive harm). (Health and Safety Code section 25249.5 et seq.)

Right-to-Know Law or Act

California-Permissible Exposure Limits for Chemical Contaminants: Aluminum, Aluminum oxide, Chromium, Copper, Magnesium, Magnesium Oxide, Manganese, Silicon, Titanium, Vanadium, Iron, Iron oxide, Zirconium, Zinc and Zinc oxide

California Proposition 65 - Hexavalent chromium compounds listed in the following- 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 List: Aluminum, Aluminum oxide, Chromium, Copper, Magnesium, Magnesium Oxide, Manganese, Vanadium, Iron oxide, Silicon, Zinc, Zinc oxide and Zirconium.

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 and 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 DATA

HMIS® ratings Health: 2 Flammability: 0 Physical hazard: 0

NFPA ratings FIRE: 0 HEALTH: 2 REACTIVITY: 0



Information contained in this (MSDS) Material Safety Data Sheet is accurate to the best of our knowledge. However, it does not express or implies any warranty with respect to this information.

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