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MATERIAL SAFETY DATA SHEET

Original: May 14, 2009 Supersedes: May 2014

Product Name: ALUMINIUM WELDING WIRE AND METALLIZING WIRE

SECTION I-CHEMICAL PRODUCT AND COMPANY INDENTIFICATION

Chemical Formula: Mixture.

Other designations: AL MIG WELD (Aluminum spooled electrode)

AL TIG WELD (Aluminum straight length welding rod)

Aluminum Metallizing Wire (coils and spools)

Agent: Torchmaster Australia Pty Ltd, Unit 2, 45 Inspiration Drive, Wangara, WA 6065.
Product Use: Welding, Filler Metal, Brazing

SECTION II-COMPOSITION INFORMATION ON INGREDIENTS

Alloy Ingredients (% by weight shown as a maximum or a rang, except for aluminum, which is a minimum % by weight)

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others Each	AL
1100	0.95=Si+Fe		0.05-0.20	0.05	--	--	--	0.10	--	0.05	99.00
1060	0.25	0.35	0.05	0.03	0.03	--	--	0.05	0.03	0.05	99.60
2319	0.20	0.30	5.8-6.8	0.2-0.4	0.02	--	--	0.10	0.1-0.2	0.05	Rmnd
4043	4.5-6.0	0.80	0.30	0.05	0.05	--	--	0.10	0.20	0.05	Rmnd
4047	11.0-13.0	0.8	0.30	0.15	0.10	--	--	0.20	--	0.05	Rmnd
5183	0.40	0.40	0.10	0.5-1.0	4.3-5.2	0.05-0.25	--	0.15	0.15	0.05	Rmnd
5356	0.25	0.40	0.10	0.05-0.2	4.5-5.5	0.05-0.2	--	0.10	0.06-0.2	0.05	Rmnd
5554	0.25	0.40	0.10	0.50-1.0	2.4-3.0	0.05-0.2	--	0.10	0.05-0.2	0.05	Rmnd
5556	0.25	0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.2	--	0.10	0.05-0.2	0.05	Rmnd
5654	0.45=Si+Fe		0.05	0.01	3.1-3.9	0.15-0.35	--	0.20	0.05-0.15	0.05	Rmnd

Notes:

(1) Berylliumshallnotexceed0.0008percent

(2) Rmnd=remainder

(3) 8-12 percent Aluminum Oxide.[1]

COMPONENT	CASNO	FORM	ACGIH_TLV	OSHA_PEL
Aluminum	7429-90-5	DUST, FUME	15,5	15
		Respirable	---	5
Beryllium	7440-41-7	All compounds as BE	0.002	0.002, 0.005

				0.025(30Min Peak/8hr shift)
Copper	7440-50-8	Fume	0.02	0.01
		Dust/mist	1	1
Iron	7439-89-6	Oxide dust &fume (AsFe)	5	10
Lead	7439-92-1	elemental &ingorganic Compounds	0.05 as Pb	0.05 as Pb
Manganese	7439-96-5	dustandfume	0.2	dust(celling)
Nickel	7440-02-0	Metal& insoluble compounds	1 as Ni	1 as Ni
		Solublecompounds	0.1asNi	1asNi
Silicon	7440-21-3	total dust	10	15
		Respirable	--	5
Titanium	7440-32-6	Oxidedust	10	15(total particulate)
Vanadium	7440-62-2	Respirable dust	0.05 as V2O5	0.5(ceiling)as V2O5
		Respirablefume		0.5(ceiling)as V2O5
Zinc	7440-66-6	Oxide fume	5,10(stel)	5
		Total oxide dust	10	15
		Resprableoxidedust	---	5
Zirconium	7440-67-7		5,10(stel)	5
Chromium	7440-47-3	Metal	0.5	1.0
		CrIIcompounds	--	0.5 as Cr
		CrIIIcompounds	0.5 as Cr	0.5 as Cr
		Cr VI compounds*	0.05 as Cr	0.1(ceiling)as Cro3
		CrVIcompounds**	0.01asCr	0.1(ceiling)as Cro3

*(water soluble) ** (certain water insoluble)

Possiblehazardsduringprocessingbywelding,orarcspraymetalizing

	ACGIH TLV	OSHA PEL
Ozone	0.1ppm(ceiling)	0.1ppm
Nitric Oxide	25ppm	25ppm
Nitrogen dioxide	3,5ppm(STEL)	5ppm(ceiling)
WeldingFumes	5mg/m3	---

SECTION III – FIRE AND EXPLOSION HAZARD DATA

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49. 1 referenced in Section VI.

SECTION IV – REACTIVITY DATA

Hazardous Decomposition Products

Welding fumes and gases cannot be classified simply. The composition and quantity of these fumes and gases are dependent upon the

metal being welded, the procedures followed and the electrodes used.

Workers should be aware that the composition and quantity of fumes and gases to which they may be exposed, are influenced by: coatings which may be present on the metal being welded (such as paint, plating, or galvanizing), the number of welders in operation and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing procedure). When the electrode is consumed, the fumes and gas decomposition products generated are different in percent and form from the ingredients listed in Section II, The composition of these fumes and gases are the concerning matter and not the composition of the electrode itself. Decomposition products include those originating from the volatilization, reaction, or oxidation of the ingredients shown in Section II, plus those from the base metal, coating and the other factors noted above.

Reasonable expected fume constituents of this product would include: Complex oxides of aluminum, iron, manganese, silicon, titanium, chromium, magnesium, zinc, beryllium and copper. Fume limit for Cr (VI) (0.05 mg/m^3) may be reached before limit of 5 mg/m^3 for general welding fumes is reached. Watch the (Cr VI) level. Other complex oxides may be present when using fluxes.

Substance	CAS No.	Exposure Limit (mg/m^3)	
		OSHA PEL	ACGIH TLV
Aluminum Oxide	1344-28-1	Nothing Found	10
Iron Oxide	1309-38-2	5	10 (as Fe2O3)
Manganese	7439-96-5	5*	1* (Fume)
Chromium Oxide	1308-38-9	0.5 (as Cr)	0.5 (Ox)
Silicon Oxide	763 1-86-9	5	3
Titanium Oxide	13463-67-7	15	10, 20**
Copper	7440-50-8	0.1 (as Fume)	0.2 (as Fume)
Aluminum Oxide	1344-28-1	Nothing Found	10

*Ceiling Limit **Short Term Exposure Limit

Gaseous reaction products may include carbon monoxide and carbon dioxide

Ozone and nitrogen oxides may be formed by the radiation from the arc.

One method of determining the composition and quantity of the fumes and gases to which the workers are exposed is to take an air sample from inside the welder's helmet while worn or within the worker's breathing zone. See ANSI/AWS F1. 1 publication available from the American Welding Society 550

SECTION V– HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not otherwise classified) is 5 mg/m^3. ACGIH-1985 preface states: "The TLC-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations." See section V for specific fume constituents, which may modify this TLV.

Common Entry Is by Inhalation or Through the Eyes and Skin.

Effects of Overexposure: Inhalation of welding fumes and gases can be dangerous to your health. Short-term (acute) overexposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Chromium (VI) compounds present in the fume may cause severe irritation of the bronchial tubes and lungs. Ingesting Chromium (VI) salts may cause injury or death. Chromium (VI) compounds may burn eyes. Chromium compounds may cause allergic reactions in some people.

Beryllium in fume or dust form is highly toxic.

Inhalation of excessive levels of beryllium and beryllium compounds can cause pneumonitis (inflammation of the lung tissues). Long-term (chronic) over-exposure to welding fumes can lead to siderosis (iron deposits in lung) and is believed to affect pulmonary function. Constant inhalation of chromium (VI) compounds may cause an ulceration and perforation of the nasal septum as well as liver and kidney damage. Workers exposed to chromium (VI) compounds and beryllium has a higher incidence of lung and nasal cancers.

Long-term exposure to beryllium by inhalation can cause berylliosis (progressive lung disease) and systemic beryllium disease.

Chromium and Beryllium compounds are on the IARC (International Agency for Research of Cancer) list as posing a carcinogenic risk to humans.

Arc Rays can injure eyes and burn skin.

Electric shock can kill

See Section VI.

Emergency and First Aid Procedures: Call for medical assistance. Use first aid procedures recommended by the American Red Cross. If breathing is difficult – give oxygen. If not breathing-use CPR (cardiopulmonary resuscitation).

Carcinogenicity

OSHA (29 CFR 1910.1200) lists Nickel and Chromium as possible carcinogens.

SECTION VI – CONTROL MEASURES AND PRECAUTIONS FOR SAFE HANDLING AND USE

Read and understand the manufacturer's instructions and precautionary label on this product. See American Standard Z49. 1 Safety in Welding and Cutting, published by the AMERICAN WELDING SOCIETY, 550 N.W. Lejenune Road, Miami, Florida 33126 and OSHA Publication 2206 (29 CFR 1910), U.S.Government Printing Office, Washington D.C. 20402 for more details on the following topics.

Ventilation: Use plenty of ventilation and/or local exhaust at the arc, to keep the fumes and gases below the threshold limit value within the worker's breathing zone and the general work area. Welders should be advised to keep their head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in a confined space or general work area where local exhaust and/or ventilation does not keep exposure below the threshold limit value.

Eye Protection: Wear a helmet or face shield with a filter lens shade number 12-14 or darker. Shield other workers by providing screens and flash goggles.

Protective Clothing: Wear approved head, hand and body protection, which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49. 1. This would include wearing welder's gloves and a protective face shield and may include arm protectors, apron, hats, shoulder protection, as well as dark substantial clothing. Welders should be trained not to allow electrically live parts to contract the skin or wet clothing and gloves. The welders should insulate themselves from the work and ground.

Waste Disposal Method: Discard any product, residue, disposal container, or liner in an environmentally acceptable manner approved by Federal, State and Local regulations.

Torchmaster Australia Pty Ltd believes that the information contained in this (MSDS) Material Safety Data Sheet is accurate. However, Torchmaster Australia Pty Ltd does not express or implies any warranty with respect to this information.