

# ALUMINUM WELDING WIRE & ROD

## MATERIAL SAFETY DATA SHEET

01/11/00

MSDS PROVIDED BY:

STOODY INDUSTRIAL AND WELDING SUPPLY, INC.

3316 National Ave., San Diego, Ca. 92113

Phone: (619) 234-6750

MILITARY EMERGENCY RESPONSE NUMBER 1-800-851-8061

**WARNING: Protect yourself and others, read and understand this information.**

**WARNING:** This product may contain Chromium and/or Nickel which are listed by OSHA, NTP, or IARC as being a carcinogen or potential carcinogen. Use of this product may expose you or others to fumes and gases at levels exceeding those established by the American Conference of Governmental Industrial Hygienists (ACGIH) or the Occupational Safety and Health Administration (OSHA). Before use read and understand the Material Safety Data Sheet (MSDS) for this product.

- Brazing alloys and fluxes may produce FUMES AND GASES hazardous to your health.
- ARC RAYS can injure eyes and burn skin.
- ELECTRIC SHOCK can KILL.
- HEAT RAYS (INFRARED RADIATION from flame or hot metal) can injure eyes.
- Before use, read and understand the manufacturer's instructions, Material Safety Data Sheets (MSDS) and your employer's safety practices.
- Keep your head out of the fumes.
- Use enough ventilation, exhaust at the arc or both, to keep fumes and gases from your breathing zone and the general area.
- For maximum safety, be certified for and wear a respirator at all times when welding or brazing.

- Wear correct eye, ear and body protection.
- Do not touch live electrical parts.
- See American National Standard Z49.1, Safety in Welding, Cutting and Allied Processes, published by the American Welding Society, 550 N.W. LeJeune Rd., Miami, Florida 33126; OSHA Safety and Health Standards, 29 CFR 1910, available from U.S. Government Printing Office, Washington, D.C. 20402.
- A Material Safety Data Sheet for this product follows. The MSDS contains detailed safety and health information about possible hazards associated with use of this product. Additional MSDS are available from your employer or by contacting Harris Welco, Kings Mountain, NC 28086.



## MATERIAL SAFETY DATA SHEET ALUMINUM WELDING WIRE AND ROD

### SECTION 1 - MATERIAL IDENTIFICATION

Manufacturer's Name	Harris Welco	Emergency Telephone No.	1-800-424-9300
Address	1051 York Road Kings Mountain, NC 28086	Telephone No. for Information	1-704-739-6421
		Date Prepared	2/97 (Supersedes 5/96)

The following table lists the trade name and composition of products covered by this Material Safety Data Sheet. See Section 2 and especially Section 6 for important health hazard data.

TRADE NAME	Bare Rod or Wire Chemical Composition %								
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
1100	a	a	.05-.20	0.05			0.10		99.00 min.
1188(d)	0.06	0.06	.005	0.01	0.01		0.03	0.01	99.88 min.
2319(b)	0.20	0.30	5.80-6.80	.20-.40	0.02		0.10	.10-.20	rem.
4043	4.50-6.00	0.80	0.30	0.05	0.05		0.10	0.20	rem.
5154	c	c	0.10	0.10	3.10-3.90	.15-.35	0.20	0.20	rem.
5183	0.40	0.40	0.10	.50-1.00	4.30-5.20	.05-.25	0.25	0.15	rem.
5356	0.25	0.40	0.10	.05-.20	4.50-5.50	.05-.20	0.10	.06-.20	rem.
5554	0.25	0.40	0.10	.50-1.00	2.40-3.00	.05-.20	0.25	.05-.20	rem.
5556	0.25	0.40	0.10	.50-1.00	4.70-5.50	.05-.20	0.25	.05-.20	rem.
5654	c	c	0.05	0.01	3.10-3.90	.15-.35	0.20	.05-.15	rem.
718 (4047)	11.00-13.00	0.80	0.30	0.15	0.10		0.20		rem.

Single figures are maximum

a. Si + Fe = 0.95 max.

b. Vanadium 0.05-0.15, Zirconium 0.10-0.25

c. Si + Fe = 0.45 max.

d. Vanadium 0.05 max., Gallium 0.03 max.

### SECTION 2 - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NUMBER	PEL mg/m3(1)	TLV mg/m3(2)
Silicon – respirable	7440-21-3	5	5
Iron	7439-89-6	5	5
Copper (dust)	7440-50-8	1	1
Manganese	7439-96-5	3 (ceiling)	3 (ceiling)
Magnesium	7439-95-4	5 (ceiling)	5 (ceiling)
Chromium	7440-47-3	1	.5
Zinc Oxide (dust)	1314-13-2	5	5
Titanium	7440-32-6	Unknown	Unknown
Aluminum	7429-90-5	5	5

SARA SECTION 313 SUPPLIER NOTIFICATION: Individual welding wire covered by this MSDS may contain the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40CFR 372: Aluminum, Zinc, Chromium, Copper, and Manganese. Refer to Section 1 of this MSDS for the welding wire name and the

# ALUMINUM WELDING WIRE & ROD

## MATERIAL SAFETY DATA SHEET

percent by weight. See Section 2 for the CAS Number for each chemical. Important: This section covers the materials from which the product is manufactured. The fumes and gases produced during welding and normal use of this product are covered in Section 6.

### NFPA HAZARD SIGNAL

<b>Health</b>	<b>2</b>	<b>Stability</b>	<b>0</b>	<b>Flammability</b>	<b>0</b>	<b>Special</b>	<b>0</b>
---------------	----------	------------------	----------	---------------------	----------	----------------	----------

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample in the workers' breathing zone. See ANSI/AWS F1.1 available from the American Welding Society, 550 N. W. LeJeune, Miami, FL 33126.

### SECTION 3 - PHYSICAL AND CHEMICAL DATA

Solid wire or rod. These products are shipped as non-hazardous, nonflammable, non-explosive, and non-reactive solid materials.

### SECTION 4 - FIRE AND EXPLOSION DATA

(Nonflammable) Welding arc, open flame and sparks can ignite combustibles. See ANSI/ASC Z49.1-1983 Section 6.

### SECTION 5 - HEALTH HAZARD DATA

EXPOSURE - Section 1 lists nominal composition of welding wire. Section 2 lists exposure limits for hazardous decomposition products that may be present in fume generated during welding. Actual exposure should be determined by monitoring fume in the operator's breathing zone. PRIMARY ROUTE OF EXPOSURE - Inhalation of fume. PRE-EXISTING MEDICAL CONDITIONS - Individuals with impaired pulmonary functions or illness may have symptoms exacerbated by fume irritants. POSSIBLE EFFECTS OF EXPOSURE - Short-term exposure to welding fume may result in discomfort, dizziness, nausea, dryness or irritation of the throat. Long term exposure to welding fume, gases or dust may contribute to pulmonary irritation or pneumoconiosis. (Long term exposure to iron fume may produce siderosis, which is generally regarded as benign). Chromium should be considered a possible carcinogen per OSHA 29CFR 1910.1200. Some compounds of hexavalent chromium have been reported to be carcinogenic. No clear association, however, has been established between chromium in welding fume and the development of cancer. Exposure limits should be maintained below the levels listed in Section 2. Copper and Zinc fume may cause metal fume fever, which may include fever, body ache and chills. EMERGENCY FIRST AID - Remove from dust or fume exposure. If breathing has stopped, perform artificial respiration. Summon medical aid immediately. OTHER HEALTH CONSIDERATIONS - ARC RAYS - From electric operations can injure eyes and burn skin. ELECTRIC SHOCK - From arc welding equipment can kill. HEAT RAYS - (Infrared radiation from flame or hot metal) can injure eyes. Gaseous reaction products such as carbon monoxide and carbon dioxide, ozone and nitrogen oxides may be formed by the radiation from the arc during electric arc welding.

<b>Without Chromium</b>	<b>CARCINOGENICITY NTP?</b>	<b>NO</b>	<b>IARC MONOGRAPHS?</b>	<b>NO</b>	<b>OSHA REGULATED?</b>	<b>NO</b>
-------------------------	-----------------------------	-----------	-------------------------	-----------	------------------------	-----------

**The State of California requires the following information: WARNING: The following aluminum products contain a chemical known to the state of California to cause cancer: 5154, 5183, 5356, 5554, 5556, and 5654**

<b>Containing Chromium</b>	<b>CARCINOGENICITY NTP?</b>	<b>YES</b>	<b>IARC MONOGRAPHS?</b>	<b>YES</b>	<b>OSHA REGULATED?</b>	<b>YES</b>
----------------------------	-----------------------------	------------	-------------------------	------------	------------------------	------------

### SECTION 6 - REACTIVITY DATA - HAZARDOUS DECOMPOSITION PRODUCTS

Welding and brazing fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed or welded, the process, procedures and filler metals used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the operator'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 activities). When the filler metal is consumed, the fume and gas decomposition products generated are different in percent and form from the solid wire or rod ingredients listed in Section 1. Fume and gas decomposition products and not the ingredients in the rod or wire, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the filler metal. Also, new compounds not in the rod or wire may form. Decomposition products of normal operation include those originating from the volatilization reaction, or oxidation of the wire or rod plus those from the base metal and coating, etc., as noted above.

### SECTION 7 - SPILL OR LEAK PROCEDURES

NOT APPLICABLE

### SECTION 8 AND 9 - SPECIAL PROTECTION INFORMATION AND PRECAUTIONS

Unusual Hazards - Damp aluminum dust may spontaneously heat with liberation of hydrogen to form explosive air mixtures. Precautions for Safe Handling and Use - Handling and Storing Precautions - Finely divided aluminum will form explosive mixtures in the air. It will also form explosive mixtures with hydrogen. When remelting aluminum scrap, entrapped moisture or the presence of strong oxidizers such as ammonium nitrate could cause an explosion. This applies to the collection of moisture in saw cavities as well. Moisture must be driven off prior to remelting. Do not touch cast aluminum metal or heated aluminum product without knowing metal temperature. Aluminum experiences no color change during heating. If metal is hot and touched, burns can result. The welding of aluminum alloys may generate carbon monoxide,

# ALUMINUM WELDING WIRE & ROD

## MATERIAL SAFETY DATA SHEET

---

carbon dioxide, ozone, nitrogen oxides, infrared radiation and ultraviolet radiation, in addition to metal fumes. Some aluminum scrap may be contaminated with oil at levels greater than 1%. Melting of aluminum scrap may generate oil vapors, which are irritating to the eyes and upper respiratory tract. Prolonged or repeated contact may cause skin irritation. Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding, Cutting and Allied Processes published by the American Welding Society, 550 N. W. LeJeune, Miami, Fl 33126 and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more details on many of the following. VENTILATION - Use enough ventilation and local exhaust at the flame or arc to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5. RESPIRATORY PROTECTION - Use respirable fume respirator or air supplied respirator when welding, brazing or soldering in confined space or where local exhaust or ventilation does not keep exposure below TLV. EYE PROTECTION - Wear a welding helmet with filter lens of appropriate shade number (see ANSI/ASC Z49.1-Section 4.2). Provide protection screens and flash goggles, if necessary, to shield others. PROTECTIVE CLOTHING - Wear head and body protection which help to prevent injury from radiation, sparks, and flame. See ANSI Z49.1. At a minimum this includes welders gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue. No warranty, guarantee, or representation is made by Harris Welco as to the absolute correctness or sufficiency of any representation contained in this and other publications; and Harris Welco assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications), or that other additional measures may not be required under particular or exceptional conditions or circumstances.

**D.O.T. INFORMATION: Non-regulated substance**  
**OUR PRODUCTS HAVE NO OZONE DEPLETING SUBSTANCES, (ODS).**

MSDS #2 - Rev. 2/97