MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet (MSDS) complies with the requirements of OSHA's Hazard Communication Standard.

7018 WELDING ELECTRODE

Laser Weld

Emergency Phone Number: 1-866-272-4378

Date: Feb 01, 2008

Product Information Number: 575-874-9188

SECTION 1 – PRODUCT IDENTIFICATION

Product Name/Class	AWS E7018 Welding Electrode
Product Number	E7018
Manufacturer	Archer Company USA, Inc. 2800 Airport Road #N, Santa Teresa, NM 88008

SECTION 2 – HAZARDOUS INGREDIENTS

IMPORTANT! This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with the normal use of this product are covered by Sections 5 through 8. See these sections for industrial hygiene information.

CAS Number shown is representative for the ingredients listed. All ingredients listed may not be present in all sizes.

The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in the Hazards Communication Standard and does not necessarily imply the existence of any hazard.

Ingredients:	CAS No.	Weight %	TLV mg/m^3	PEL mg/m^3	Supplemental Information:
Iron	7439-89-6	15	10*	10*	*Not listed. Nuisance value maximum is 10 mg/m^3. PEL value for iron oxide is 10 mg/m^3. TLV value for iron oxide is 5 mg/m^3 ** As respirable dust. *** Subject to the reporting requirements of Sections 311, 312, and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 370 and 372. (@) As V_2O_5 fume or dust (c) Values are for manganese fume. STEL (Short Term Exposure Limit) is 3.0 mg/m^3
Limestone and/or calcium carbonate	1317-65-3	10	10	15	
Fluorides (as F)	7789-75-5	5	2.5	2.5	
Silicates and other binders	1344-09-8	<5	10*	10*	
Titanium dioxides (as Ti)***	13463-67-7	<5	10	10	
Manganese and/or manganese alloys and compounds (as Mn)***	7439-96-5	<5	0.2	1.0(c)	
Silicon and/or silicon alloys and compounds (as Si)	7440-21-3	1	10*	10*	
Aluminum oxide and/or Bauxite ***	1344-28-1	<0.5	10	10	
Zinc and/or zinc oxides***	1314-13-2	<0.5	10	10	
Mineral silicates	1332-58-7	<0.5	5**	5**	
Vanadium alloys (as V)	7440-62-2	<0.5	.05 (@)	.05 (@)	
Carbon steel core wire	7439-89-6	60	10*	10*	

SECTION 3 – PHYSICAL CHARACTERISTICS

Boiling Point: N/A	Specific Gravity (H_2O = 1): N/A	Solubility in Water: N/A
Vapor Pressure (mm Hg.) N/A	Melting Point N/A	%Volatile: N/A
Vapor Density (Air = 1) N/A	Evaporation Rate (Butyl Acetate =1) N/A	Appearance and Odor: N/A

SECTION 4 – FIRE and EXPLOSION HAZARD DATA

Non Flammable. Welding arc and sparks can ignite combustibles and flammables. Refer to American National Standard Z49.1 for fire prevention during the use of welding and allied procedures.

SECTION 5 – REACTIVITY DATA

Hazardous Decomposition Products: Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes 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 worker 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 activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 2. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 2, plus those from the base metal and coating, etc. as noted above.

Reasonably expected fume constituents of this product would include: Primarily iron oxide and fluorides; secondarily complex oxides of manganese, potassium, silicon, sodium, and zinc.

Maximum fume exposure guideline for this product (based on manganese content) is 4.0 milligrams per cubic meter.

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

SECTION 5 – REACTIVITY DATA (continued)

Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.4, and F1.5, available from the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

SECTION 6 – HEALTH HAZARD DATA

Carcinogenicity: The composition of welding or brazing fumes may contain carcinogens, depending on several factors that are unknown and unknowable to the product manufacturer (see Section 5). Always assume that welding or brazing fumes may contain toxic and/or carcinogenic materials, and follow sound Work/Hygiene practices as recommended by ANSI Z49.1.

Threshold Limit Value: The ACGIH recommended general limit for Welding Fume NOC – (Not otherwise Classified) is 5 mg/m^3. ACGIH-1987-88 preface states that the TLV-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 5 for specific fume constituents which may modify this TLV. Threshold Limit Values are figures published by the American Conference of Government Industrial Hygienists. Units are milligrams per cubic meter of air. Effects of Overexposure: Electric arc welding may create one or more of the following health hazards: Fumes and Gases can be dangerous to your health. Common entry is by inhalation. Other possible routes are skin contact and ingestion. Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Exposure to extremely high levels of fluorides can cause abdominal pain, diarrhea, muscular weakness, and convulsions. In extreme cases it can cause loss of consciousness and death. Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung) and may affect pulmonary function. Manganese overexposure can affect the central nervous system, resulting in impaired speech and movement. Bronchitis and some lung fibrosis have been reported. Repeated exposure to fluorides may cause excessive calcification of the bone and calcification of ligaments of the ribs, pelvis and spinal column. May cause skin rash. Arc Rays can injure eyes and burn skin. Skin cancer has been reported. Electric Shock can kill. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control. Emergency and First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross. IF BREATHING IS DIFFICULT give oxygen. IF NOT BREATHING employ CPR (Cardiopulmonary Resuscitation) techniques. IN CASE OF ELECTRICAL SHOCK, turn off power and follow recommended treatment. In all cases, call a physician.

HMIS Rating	HMIS Scale	NFPA Rating	NFPA Scale
Health = 2 Flammability = 0 Reactivity = 0	4 = Severe Hazard 3 = Serious Hazard 2 = Moderate Hazard 1 = Slight Hazard 0 = Minimal Hazard	Health = 1 Flammability = 0 Reactivity = 0 Other = N/A	4 = Severe Hazard 3 = Serious Hazard 2 = Moderate Hazard 1 = Slight Hazard 0 = Minimal Hazard

SECTION 7 – PRECAUTIONS for SAFE HANDLING and USE

Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard Z49.1, "Safety in Welding and Cutting", published by the American Welding Society, 550 N.W. LeJeune Road, 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:

Disposal Information: Discard any product, residue, disposable container, or liner as ordinary waste in an environmentally acceptable manner according to Federal, State and Local Regulations unless otherwise noted.

SECTION 8 – CONTROL MEASURES

Respiratory Protection (Specify Type) Use respirable fume respirator or air supplied respirator when welding in confined space or general work area when local exhaust or ventilation does not keep exposure below TLV.

Ventilation: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes. Keep exposure as low as possible.

Eye Protection: Wear helmet or use face shield with filter lens shade number 12 or darker. Shield others by providing screens and flash goggles.

Other Protective Clothing or Equipment: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to permit electrically live parts or electrodes to contact skin or clothing or gloves if they are wet. Insulate from work and ground.

OTHER INFORMATION REQUIRED BY STATE OR FEDERAL LAW

California Proposition 65 Information: Warning: This product contains a chemical known to the State of California to cause cancer.

New Jersey Right-To-Know Information: 5 most predominant ingredients/hazardous and non-hazardous) 1. Carbon steel; 2. Iron; 3.Limestone and/or calcium carbonate; 4. Flourides (as F); 5. Silicon and/or silicon alloys and compounds (as Si).

SARA Title III Notification Information: All chemical compounds marked with an asterisk (*) are toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Super Fund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Disclaimer of Expressed and Implied Warranties: The information in this document is believed to be correct as of the date issued. However, no warranty of merchantability, fitness for any particular purpose, or any other warranty is expressed or is to be implied regarding the accuracy or completeness of this information, the results to be obtained from the use of this information or the product, the safety of this product, or the hazards related to its use.