MATERIAL SAFETY DATA SHEET

PLEASE CAREFULLY READ AND UNDERSTAND THIS MATERIAL SAFETY DATA SHEET BEFORE USING THIS PRODUCT

For Welding Consumables and Related Products

May be used to comply with OSHA's Hazards Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

SECTION I (IDENTIFICATION)

Manufacturer/Supplier Name: UNIWELD PRODUCTS, INC. Emergency Phone No.: (954) 584-2000
2850 Ravenswood Road
Fort Lauderdale, FL 33312
Product Name(s): **UNI-4000**
Product Classification: **ALUMINUM WELDING FILLER ALLOY**

SECTION II (HAZARDOUS INGREDIENTS/IDENTITY INFORMATION)

Important: This section covers the materials from which these products are manufactured. The fumes and gases produced during normal use of these products are covered by Section V. The term "Hazardous Materials" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 26 CFR 1910.1200 and it does not necessarily imply the existence of hazard.

INGREDIENT	% WEIGHT	CAS NO.	EXPOSURE LIMIT (mg/m^3)	
			OSHA PEL	ACGIH TLV
ALUMINUM	70-80	7429-90-5	5 (as Fume)	5 (as Fume)
SILICON	1-11	7440-21-3	10	10
ALUMINUM FLUORIDE (ALUMINUM FUME)#	1-11	77884-18-1	2.5 (as F) 5 (Al fume)#	2.5 (as F) 5 (Al fume)#
LITHIUM FLUORIDE	1-11	7789-24-4	2.5 (as F)	2.5 (as F)
MAGNESIUM FLUORIDE	1-11	7783-40-6	2.5 (as F)	2.5 (as F)
POTASSIUM CHLORIDE	1-11	7447-40-7	Not Registered	Not Registered
POTASSIUM FLUORIDE	2-12	7789-23-3	2.5 (as F)	2.5 (as F)
SODIUM CHLORIDE	1-11	7440-41-7	.002 (as Fume)	.002 (as Fume)

The exposure limit for welding fume has been established at 5 mg/m3 with OSHA's PEL and ACGIH's TLV. The individual complex compounds within the fume may have lower exposure limits than the general welding fume PEL/TLV. An industrial hygienist, the OSHA permissible exposure limits for air contaminants (29 CRF 1910.1000), and the ACGIH threshold limit values should be considered to determine the specific fume constituents present and their respective exposure limits.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Not applicable

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Nonflammable, Welding arcs and sparks can ignite combustibles and flammable products. See American National Standard Z49.1 referenced in Section 7.

SECTION V - REACTIVITY DATA

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures, and electrodes used. **Most fume ingredients are present as complex oxides and compounds and not as pure metals.** 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 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 use 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 constituents of the fume would include: Primarily - iron oxides; Secondarily - complex manganese, molybdenum, silicon, chromium and nickel compounds. Monitor for materials identified in Section 2. Fumes from the use of these products contain nickel, chromium, amorphous silica, and manganese whose exposure limits are lower than the 5 mg/m3 PEL/TLV for general welding fume. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet if worn or in the worker's breathing zone. [See ANSI/AWS F1.1, available from the "American Welding Society", P.O. Box 351040, Miami, FL 33135. Also, from AWS is F1.3 "Evaluating Contaminants in the Welding Environment - A Sampling Strategy Guide", which gives additional advice on sampling.] At a minimum, materials listed in this section should be analyzed for the following:

SECTION VI - HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified) is 5 mg/m^2. ACGIH 1984-85 preface states, "The TVL-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section V for specific fume constituents which may modify this TVL.

Effects of Overexposure:

FUMES AND GASES can be dangerous to your health. Primary route of exposure is inhalation of fumes. Preexisting respiratory or allergic conditions may be aggravated in some individuals.

WARNING: DO NOT BREATHE FUMES!

SHORT-TERM (ACUTE) OVEREXPOSURE to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of the nose, throat or eyes.

LONG-TERM (CHRONIC) OVEREXPOSURE may lead to siderosis (iron deposits in the lungs) and is believed by some investigators to affect pulmonary functions. Beryllium can lead to respiratory symptoms, weakness, fatigue, weight loss, cumulative lung damage (Beryllosis), and is a suspected carcinogen. Chromium: ulceration and perforation of nasal septum. Respiratory irritation may occur with symptoms resembling asthma. Studies have shown that chromate production workers

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exposed to hexavalent chromium compounds have an excess of lung cancers. Chromium (VI) compounds are more readily absorbed through the skin than chromium (III) compounds. Good practice requires the reduction of employee exposure to chromium (III) and (VI) compounds. Cobalt should be considered as a possible carcinogen.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill. See Section VII.

Emergency and First Aid procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross. Eyes and skin: if irritation or burns develop after exposure, consult a physician.

▽ **WARNING: CALIFORNIA PROPOSITION 65:** This product, when used for welding, soldering, brazing, cutting and other metal working or flame processes, produces fumes, particulates, residues and/or other by-products which contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. ▽ WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING & USE/APPLICABLE CONTROL MEASURES

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding and Cutting published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington, DC 20402 for more detail on any of the following.

VENTILATION: Use enough ventilation, local exhaust at the arc or both to keep the fumes and gases below PEL/TLVs in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

▽ **WARNING: DO NOT BREATHE FUMES!**

RESPIRATORY PROTECTION: Use NIOSH approved or equivalent fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below PEL/TLVs.

EYE PROTECTION: Wear helmet or use face shield with filter lens. As a rule of thumb begin with Shade Number 14. Adjust if needed by selecting the next lighter and/or darker shade number. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING: Wear hand, head and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI 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 nonsynthetic clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

PROCEDURE FOR CLEANUP OF SPILLS OR LEAKS: Not applicable.

WASTE DISPOSAL: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations.

SPECIAL PRECAUTIONS (IMPORTANT): Maintain exposure below the PEL/TLVs. Use industrial hygiene monitoring to ensure that your use of this material does not create exposures which exceed PEL/TLVs. Always use exhaust ventilation. Refer to the following sources for important additional information: ANSI Z49.1 from the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA (29 CFR 1910) from the U.S. Department of Labor, Washington, D.C. 20210.

Uniweld Products, Inc. believes this data to be accurate and to reflect qualified expert opinion regarding current research. Uniweld Products, Inc. cannot make any expressed or implied warranty as to this information.