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): DECOPTIG/DECOPMIG, ALBROTIG/ALBROMIG, SILBROTIG/SILBROMIG, PHOSBROTIG/PHOSBROMIG

Product Classification: COPPER BASE WELDING WIRE AWS A5.7, AWS A5.27

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
COPPER	N/A	7440-50-8	0.1 (fume) 1.0 (dust & mist)	0.5 (fume) 1.0 (dust & mist)
ALUMINUM	N/A	7429-90-5	15 (metal dust) 5 (respirable fraction) 5 (welding fume)	10 (metal dust) 5 (welding fume)
IRON	N/A	7439-89-6	10 (iron oxide dust)	5 (iron oxide fume)
SILICON	N/A	7440-21-3	10 (total dust) 5 (respirable fraction)	.02 (total dust)
MANGANESE (DUST & COMPONENTS)	N/A	7439-96-5	C5	0.2
ZINC	N/A	1314-13-2	10 (dust) 5 (fume)	5 (dust) 5 (fume)
TIN	N/A	7440-31-5	2	2
NICKEL	N/A	7440-02-0	nil (metal dust)	1 (metal dust)
PHOSHOROUS	N/A	7723-14-0	0.1	0.1
LEAD	N/A	7439-92-1	0.15	0.15

SECTION III (PHYSICAL DATA)

Not applicable

SECTION IV (FIRE AND EXPLOSION HAZARD DATA)

Nonflammable. Welding arc and spark can ignite combustibles. Refer to American National Standard Z-49.1 for fire prevention during welding.

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/m^3 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!**

Under normal handling and use, exposure to copper alloy wire presents few health hazards in itself. Thermal cutting and melting of copper alloys may produce fumes containing the component elements, and breathing these fumes may present potentially significant health hazards. The exposure levels in Section II are relevant to fumes and dust.

Fumes of copper, manganese and zinc oxide may cause metal fume, fever with flu-like symptoms. Copper may cause skin and hair discoloration. Overexposure to dusts and especially fumes containing component elements of tin alloys may cause skin, nose, mouth, and eye irritation and lung changes in workers, potentially leading to pulmonary diseases. Dusts may result in benign pneumoconiosis. Silicon when heated in air can form silicon dioxide or silica which may cause pulmonary fibrosis and silicosis on chronic exposure. The inhalation of iron oxide may cause an apparent benign pneumoconiosis called siderosis. Inhalation of aluminum dust and/or fumes is a low health risk. Chronic exposure may cause pulmonary fibrosis characterized by breathing difficulty, coughing, shortness of breath, sneezing and other respiratory difficulties. Nickel, nickel

compounds may be associated with lung fibrosis or pneumonconiosis. Studies of nickel refinery workers indicated a higher incidence of lung and nasal cancers. A short term dose of lead can lead to acute encephalopathy. Lead adversely effects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years. Chronic overexposure to lead may result in severe damage to your blood – forming nervous, urinary and reproductive systems. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. Chronic overexposure to lead also result in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. There is evidence of miscarriage and stillbirth in women. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. Overexposure to lead also disrupts the blood – forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

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.

CARCINOGENICITY: Chromium VI, cobalt, beryllium. Nickel and its compounds should be considered as possible carcinogens.

▽ **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 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 AND USE/APPLICABLE CONTROL MEASURES)

Read and understand the manufacturer's instructions and the precautionary label on the product. (See American National Standard Z-49.1, "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), US Government Printing Office, Washington, DC 20402 for more detail on the following):

VENTILATION: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's 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 respirable fume respirator or air supply respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION: Wear helmet or use face shield with filter lens. As a rule of thumb, begin with shade #14. Adjust if needed by selecting the next lighter or darker shade number.

PROTECTIVE CLOTHING: Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. 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 substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

PROCEDURE FOR CLEANUP OR 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 and in full compliance with federal, state and local regulations.

SPECIAL PRECAUTIONS: IMPORTANT. MAINTAIN EXPOSURE BELOW PEL/TLV. USE INDUSTRIAL HYGIENE MONITORING TO ENSURE THAT YOUR USE OF THIS MATERIAL DOES NOT CREATE EXPOSURES WHICH EXCEED PEL/TLV. Always use exhaust ventilation. Refer to the following sources for important additional information: ANSI Z-49.1. The American Welding Society, P.O. Box 351040, Miami FL 33135: OSHA (29 CFR 1910), US Dept. of Labor, Washington, DC 20210.