


## MATERIAL SAFETY DATA SHEET

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

<b>SILICON BRONZE</b>				
		Emergency Phone Number: 866-734-3438		
Date: April 30, 2006		Product Information Number: 888-838-0615		
<b>SECTION 1 – PRODUCT IDENTIFICATION</b>				
Product Name/Class	Silicon Bronze			
Product Number	004016			
Manufacturer	Radnor Welding Products 259 N. Radnor-Chester Road Suite 100 Radnor, PA 19087-5283			
<b>SECTION 2 – HAZARDOUS INGREDIENTS</b>				
Material	CAS Number	% By Weight	ACGIH TLV	SARA Sec 313 Reporting
Copper (Dust)	7440-50-8	Balance	1 MG/M <sup>3</sup>	Yes
Lead (Dust)	7439-92-1	0 - .02	0.15 MG/M <sup>3</sup>	Yes
Manganese (Dust)	7439-96-5	.5 - 1.4	5 MG/M <sup>3</sup>	Yes
Silicon	7440-21-3	2.8 - 3.6	10 MG/M <sup>3</sup>	N/A
Zinc	7440-66-6	0 - 1	10 MG/M <sup>3</sup>	Yes
Density: .308 pounds per cubic inch.				
<b>SECTION 3 – PHYSICAL CHARACTERISTICS</b>				
Boiling Point: N/A	Specific Gravity (H <sub>2</sub> O = 1): 7.4 - 0		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: Silver or Yellow or Red No odor.	
<b>SECTION 4 – FIRE and EXPLOSION HAZARD DATA</b>				
Flash Point (Method Used): N/A	Flammable Limits:		LEL: N/A UEL: N/A	
Extinguishing Media: Never use water as an extinguishing agent around molten metal. Water will react violently around any molten metal. Use dry chemical, CO <sub>2</sub> or sand.				
Special Fire Fighting Procedures: 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.				
Unusual Fire and Explosion Hazards: Solid massive form is not combustible. Fire and explosion hazards are moderate in the form of dust and exposed to heat, lame, chemical reaction, or in contact with oxidizers. Fire fighters should wear self-contained breathing apparatus and protective clothing.				
<b>SECTION 5 – REACTIVITY DATA</b>				
Stability	Unstable <input type="checkbox"/> Stable <input checked="" type="checkbox"/>	Conditions to Avoid: Molten metal may react violently with water.		
Incompatibility (Materials to Avoid): Mercury, ammonia, and pressurized acetylene.				
Hazardous Decomposition or Byproducts: N/A				
Hazardous Polymerization	May Occur <input type="checkbox"/> Will Not Occur <input checked="" type="checkbox"/>	Conditions to Avoid: N/A		
<b>SECTION 6 – HEALTH HAZARD DATA</b>				
Routes of Entry: <input checked="" type="checkbox"/> Inhalation <input checked="" type="checkbox"/> Skin <input checked="" type="checkbox"/> Ingestion <input checked="" type="checkbox"/> Eyes				
Health Hazards (Acute and Chronic): Chronic exposure to: Respiratory tract irritation, metal fume fever, eye irritation. Long term repeated exposures to excessive fume concentrations may lead to intoxication including kidney disease, anemia, nervous disorders, birth defects and nasal and lung cancer.				
Carcinogenicity: This product contains lead. Lead and lead compounds are considered by OSHA to be carcinogenic. 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. Under normal handling conditions, the solid alloy presents no health hazards.				

Signs and Symptoms of Exposure: Welding or brazing operations 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. Long-term (chronic) overexposure to brazing fumes can lead to intoxication including kidney disease, anemia, nervous disorders, birth defects and nasal and lung cancer.

Medical Conditions Generally Aggravated by Exposure: May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).

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. Flush eyes with water. Vacuum off excess dust from skin. Wash well with soap and water. Remove to fresh air.

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

**SECTION 7 – PRECAUTIONS for SAFE HANDLING and USE**

Steps to Be Taken in Case Material Is Released or Spilled: If large quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentration of airborne dust. Follow federal, state and local regulations concerning disposal of waste.

Waste Disposal Method: Discard any product residue, disposable container, or liner in an environmentally acceptable manner. Apply recommendations of NFPA 49 for copper alloys.

Precautions to Be Taken In Handling and Storing: Handle only during welding and brazing. Good housekeeping must be practices during storage, transfer and use, to avoid excessive dust accumulations. See Section 8.

**SECTION 8 – CONTROL MEASURES**

Respiratory Protection (*Specify Type*): Should be used in accordance with 29 CFR 1910.34. If exposure is above the PEL or TLV – NIOSH approved respirator for fume and dust. The ACGIH recommended general limit for Welding Fume NOC – (Not otherwise Classified) is 5 mg/m<sup>3</sup>. 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.

Ventilation: Local mechanical exhaust recommended during all welding or brazing operations.

Protective Gloves: Required during welding or handling.

Eye Protection: Always wear eye protection during welding or brazing operations, helmet and/or face shield with filter lens recommended.

Other Protective Clothing or Equipment: Welding may produce fumes & gases hazardous to health, avoid breathing these fumes and/or gases. Protective clothing required against burns. See latest NIOSH Requirements and National Standard Z49.1.

Work/Hygienic Practices: Meet requirements of OSHA lead standard where necessary. Wash hands thoroughly after use, and before eating, drinking, smoking, applying cosmetics or contact lenses. Wet material should never be charged into a molten bath. Maintain exposure below the 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 Z49.1, The American Welding Society, P.O. Box 351040, Miami, FL 33135, OSHA (29CFR 1910) U.S. Department of Labor, Washington, D.C. 20210.

**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 or birth defects or reproductive harm.

New Jersey Right-To-Know Information: 5 most predominant ingredients/hazardous and non-hazardous):  
1. Copper; 2. Silicon; 3. Manganese; 4. Zinc; 5. Lead.

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.