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MATERIAL SAFETY DATA SHEET

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Product Identity: Bronzeflow™ (1440-0005)

This MSDS is based on air/fuel or oxy/fuel process.
There may be other cautions for electric process.

SECTION I: Material Description

Chemical Name & Formula: See Section II
Product Use: Welding Wire or Rod

SECTION II: Hazardous* Ingredients/Identity Information

Hazardous Components	Weight %	(Specific Chemical Identity) CAS No.	mg/m ³ OSHA PEL	mg/m ³ ACGIH TLV		OTHER LIMITS RECOMMENDED
Copper, Cu	56.0-60.0	7440-50-8	0.1	0.2	Fume	N/A
Manganese, Mn	0.01-0.50	7439-96-5	5.0(ceiling)	1.0(fume)		N/A
Iron, Fe	0.25-1.2	1309-37-1	10.0	5.0	Oxide Fume	N/A
Tin, Sn	0.8-1.1	7440-31-5	2.0	2.0	Oxide	N/A
Silicon, Si	0.4-0.15	60676-76-86-0	Not listed	5.0	Respirable Dust	N/A
Silicon, Si	0.4-0.15	60676-76-86-0	Not listed	10.0	Total Dust	N/A
Zinc Oxide, Zn	Balance	1314-13-2	5.0	5.0	Fume	N/A
Flux Coatings:						
Boric Acid	96	1303-86-2	15.0	10.0	Boron Oxide	N/A
Binder (Nonhazardous)	4					

*This product contains Copper, Manganese and Zinc which are subject to the reporting requirements of Section 313 of EPCA and 40 CFR 372.

Welding rod or wire is a nonhazardous solid at ambient temperature. Hazards (as defined by OSHA 29CFR 1910.1200) may result from fume generated during welding or brazing.

IMPORTANT - See Section VI for information on potential fume hazard resulting from use of the product.

SECTION III: Physical Data

White colored flux coated solid wire or rod.

SECTION IV: Fire and Explosion Data

(Non-flammable) Open flames and sparks can ignite combustibles. See ANSI/ASC Z49.1-1983 Section 6.

SECTION V: Health Hazard Data - Brazing Alloys

Exposure: Section II lists the normal composition of copper based filler metals. Section VI lists exposure limits for hazardous decomposition products which might be present in fume generated during brazing. *Actual exposure should be determined by monitoring fume in the operator's breathing zone.*

Primary Routes 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: Copper and zinc fumes may cause metal fume fever. Short term symptoms may include a metallic taste in the mouth, dryness or irritation of the throat followed by coughing, shortness of breath, nausea, fever, body ache, and chills. Long term exposure to welding fume, gases or dust may contribute to pulmonary irritation or pneumoconiosis. For flux coated material - Inhalation of fume may cause headache, nausea and irritation of the nose, throat and lungs. Repeated or prolonged contact may irritate the skin. Repeated overexposure to toluene can cause neurotoxic effects. Overexposure to toluene has caused embryofetotoxic effects in laboratory animals.

Emergency First Aid: Remove from dust or fume exposure. If breathing has stopped, perform artificial respiration. Summon medical aid immediately.

Other Health Considerations: Heat Rays - (Infrared radiation from flame or hot metal) can injure eyes.

SECTION VI: 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 II. 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. Decomposition products of normal operation on include those originating from the base metal and coating, etc. as noted above. wire or rod plus those from the base metal and coating etc. as noted above. 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 worker's breathing zone. See ANSI/AWS F1.1 available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

SECTION VII: Spill or Leak Procedures

Not Applicable.

SECTION VIII & IX: Special Protection Information and Precautions

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 (29CFR1910), U.S. Government Printing Office, Washington D. C. 20402 for more detail on many of the following.

Ventilation: Use enough ventilation, local exhaust at the flame 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 brazing in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection: Wear safety glasses, goggles or use face shield 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 welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing.

Victor Equipment Company requests the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product a user should (1) notify its employees, agents and contractors of the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the same product hazards and safety information. The information in the MSDS was obtained from sources which we believe are reliable, and to the best of our knowledge is accurate. However, the information is provided without any representation or warranty, express or implied regarding its accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. NO REPRESENTATION OR WARRANTIES EITHER EXPRESSED OR IMPLIED, OF ANY NATURE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE MADE HEREIN WITH RESPECT TO THE INFORMATION OR THE PRODUCT TO WHICH THE INFORMATION REFERS.