

FOR CHEMICAL EMERGENCY CALL CHEMTREC (24 HRS):  
 1-800-424-9300 (U.S., Canada, Puerto Rico, Virgin Islands)  
 1-202-483-7616 (outside above area)

Revision Date: 8/2000  
 Supplier: Eagle International  
 P.O. Box 5639  
 276 Aviation Dr.  
 Statesville, NC 28677  
 1-704-878-9583

**MATERIAL SAFETY DATA SHEET**  
**CADMIUM FREE SILVER BRAZING ALLOYS**  
 Code: Ag, Ni, SN, Cu, Zn, MN

<b>SECTION 1 – MATERIAL COMPOSITION</b>
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The following chart displays the product name and composition of Brazing Alloys covered by this Material Safety Sheet. See Section 2 and especially Section 6 for Important Health Hazard Information.

**CADMIUM FREE SILVER BRAZING ALLOYS**

Nominal Composition %

<b>PRODUCT NAME</b>	<b>AWS A5.8</b>	<b>AMS</b>	<b>AG</b>	<b>CU</b>	<b>ZN</b>	<b>NI</b>	<b>SN</b>	<b>Other</b>
SILVERBRAZ 5			5	58	37			
SILVERBRAZ 7			7	93				
SILVERBRAZ 9			9	53	38			
SILVERBRAZ 20			20	45	35			
SILVERBRAZ 25			25	52.5	22.5			
SILVERBRAZ 25SN2			25	40	33		2	
SILVERBRAZ 30	BAg-20		30	38	32			
SILVERBRAZ 35			35	32	33			
SILVERBRAZ 38	BAg-34		38	32	28			
SILVERBRAZ 40L			40	30	30			
SILVERBRAZ 40			40	36	24			
SILVERBRAZ 40SN2	BAg-28		40	30	26		2	
SILVERBRAZ 40N12	BAg-4		40	30	28			
SILVERBRAZ 40N15			40	30	25	5		
SILVERBRAZ 45T			45	27	25		3	
SILVERBRAZ 45	BAg-5		45	30	25			
SILVERBRAZ 49N14	BAg-22		49	16	23	4.5		7.5
SILVERBRAZ 50	BAg-6		50	34	16			
SILVERBRAZ 50N12	BAg-24		50	20	28	2		
SILVERBRAZ 54	BAg-13	4772	54	40	5	1		
SILVERBRAZ 56N12	BAg-13a	4765	56	42		2		
SILVERBRAZ 56	BAg-7	4763	56	22	17		5	
SILVERBRAZ 60			60	25	15			
SILVERBRAZ 60SN10								

PRODUCT NAME	AWS A5.8	AMS	AG	CU	ZN	NI	SN	Other
SILVERBRAZ 63	BAG-21	4774C	63	28.5		2.5	6	
SILVERBRAZ 72	BAG-8		72	28				
TRIMETAL 40N12	BAG-4		40	30	28	2		
TRIMETAL 40N15			40	30	28	2		
TRIMETAL 50N12	BAG-24		50	20	28	2		

## SECTION 2 – HAZARDOUS INGREDIENTS

Important: This section covers the materials from which the products are manufactured. The fumes and gases produced during brazing with normal use of this product are covered in Section 6.

INGREDIENT	CAS NO	PEL mg/m <sup>3</sup>	TLV mg/m <sup>3</sup>
SILVER (metal)	7440-22-4	0.01	0.1
SILVER (soluble)	7440-22-4	0.01	0.01
COPPER (dust)	7440-50-8	1.0	1.0
ZINC (oxide)	1314-13-2	5.0	5.0 (fume)
TIN (oxide)	7440-31-5	2.0	2.0
NICKEL	7440-02-0	1.0	1.0
MANGANESE (fumes)	7439-96-5	1.0	1.0

(fume asM)

SARA SECTIONS 313 SUPPLIER NOTIFICATION: Individual filler metals covered by this MSDS may contain the following toxic chemicals subject to the reporting requirements of Section 3134 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40CFR 372. Copper, Manganese, Nickel, Silver and Zinc. Refer to Section 1 of this MSDS for the filler metal name and the percent by weight and Section 2 for the CAS number for each chemical.

### NFPA HAZARD SIGNAL

Health 1

Stability 0

Flammability 0

Special 0

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One way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample in the workers breathing zone. See ANSI/AWS f1.1 available from the American Welding Society, 550 NW Laguna Rd., Miami FL, 33126.

## SECTION 3 – PHYSICAL AND CHEMICAL DATA

The products are shipped as non-hazardous, non-flammable, non-explosive and reactive solid materials.

## SECTION 4 – FIRE AND EXPLOSION DATA

(Nonflammable). Open flame and sparks can ignite combustibles. See ANSI/ASC 249.1 1983 Section 6.

SECTION 5 – HEALTH HAZARD DATA – BRAZING ALLOYS

EXPOSURE: Section 1 lists nominal composition of brazing filler metals. Section 2 lists exposure limits for hazardous decomposition products that may be present in fume generated during brazing. Actual exposure should be determined by monitoring fume in the operator's breathing zone.

PRIMARY ROUTE 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 fume may cause 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 brazing fume, gasses, or dust may contribute to pulmonary irritation or pneumoconiosis. Nickel should be considered a possible carcinogen per OSHA 29 CFR 1910.1200. Certain nickel compounds have been implicated based on experience in some nickel refining operations. The specific compounds, however, have not been determined and direct association between nickel in welding fume and cancer has not been demonstrated.

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EMERGENCY FIRST AID: Remove from dust or fume exposure. If breathing has stopped, perform artificial respiration. Summon medical aid immediately.

OTHER HEALTH CONSIDERATIONS: Brazing alloys are frequently used with a fluoride type flux. If applicable, flux fume should be considered in evaluation of hazards.

Without Nickel Carcinogenicity NPT No. IARC Monographs NO. OSHA Regulated No

The State of California requires the following information for products containing Nickel.

WARNING: This product contains a chemical known to the State of California that may cause cancer.

With Nickel CARCINOGENICITY NPT Yes LARC Monographs No OSHA Regulated No.

SECTION 6 – REACTIVITY DATA – HAZARDOUS  
DECOMPOSITION PRODUCTS

HAZARDOUS DECOMPOSITION PRODUCTS: Brazing fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being brazed, 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 brazed (such as paint, plating, or galvanizing), the number of operators 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 1. 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 rod or wire. Also, new compounds not in the rod or wire may form. Decomposition products or normal operation include those originating from the volatilization reaction or oxidation of the wire or rod plus those from the base metal and coating, etc., as noted above.

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SECTION 7 – SPILL OR LEAK PROCEDURES
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NOT APPLICABLE

SECTION 8 AND 9 – SPECIAL PROTECTION INFORMATION AND PRECAUTIONS
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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, Florida 33135 and OSHA Publication 2206 (29 CFR 1910), 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 helps to prevent injury from heat radiation, sparks, and flame. See ANSI Z49.1. At a minimum this includes gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection as well as dark substantial clothing.

The information and recommendations contained in this publication have been compiled from sources believed to be reliable and to represent the best information on the subject at the time of issue, NO warranty, guarantee or representation is made by The Company as to the absolute correctness or sufficiency of any representation contained in this and other publications; The Company assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications) or that other or additional measures may not be required under particular or exceptional conditions or circumstances.