

MATERIAL SAFETY DATA SHEET

Revised 03/16/2011

Complies with OSHA Hazard Communication Standard 29CFR 1910.1200

Manufacturer: Aufhauser Corporation 39 West Mall Plainview New York 11803 Tel. 516-694-8696**Emergency Tel. 516-694-8696.****I. Product Identification**

Use of Product : Brazing or Braze Welding

Product Name: Copper based Brazing Rod , Flux coated or Bare

Chemical Family: Copper Alloys. Copper, Zinc, Nickel, Tin Alloys.

Product includes the following Aufhauser Alloys (including flux coated modifications):

470 Naval Bronze	680 Low Fuming Bronze Nickel	681- Bare Low Fuming Bronze	681 Low Fuming Bronze Flux Coated
189 Deoxidized Copper	773 Nickel Silver	656 Silicon Bronze	773 Nickel Silver Flux Coated
Phos Bronze A	Phos Bronze C		

Chemical Composition

Aufhauser alloys may contain one or more of the following ingredients:

Element	Borax Glass Anhydrous	Boric Acid	Cu	Fe	Mn	Ni	Si	Ag	Sn	Zn
Range %	0 – 9	0 – 9	44 – 97	0 – 1.5	0 – 1.5	0 – 13	0 – 3.5	0 – 0.7	0 – 9.0	0 – 45

II. Hazardous Ingredients

IMPORTANT: This section covers the materials from which the product is manufactured. The fumes and gases produced during normal use of these products are covered in Section V. The term HAZARDOUS should be interpreted as a term required and defined by Laws, Statutes or Regulations, and does not necessarily imply the existence of any hazard when the products are used as directed by Aufhauser.

HAZARD RATING (HMIS):

HEALTH	FLAMMABILITY	REACTIVITY
2	0	0

Element	CAS number	SARA	Range-%	OSHA permissible exposure Limit- 8 hour TWA	AGGIH threshold limit value- 8 hour TWA
Borax Glass, Anhydrous	1303-96-4		0-9	10 mg/m ³ ***	1 mg/ m ³
Boric Acid	10043-35-3		0-9	10 mg/m ³	10 mg/ m ³
Copper	7440-50-8	**	44-97	0.1mg/ m ³ fume 1 mg/ m ³ dust & mists	0.2mg/ m ³ fume 1 mg/ m ³ dust & mists
*Iron	7439-89-6		0-1.5	10 mg/ m ³ fume	5 mg/ m ³ fume
Manganese	7439-96-5	**	0-1.5	10 mg/ m ³	1 mg/ m ³ fume, 5 mg/ m ³ dust
Nickel	7440-02-0		0-13	1 mg/ m ³	1 mg/ m ³
Silicon	7440-21-3		0-3.5	15 mg/ m ³ total dust 5 mg/ m ³ respirable fraction	10 mg/ m ³
Silver	7440-22-4		0-0.7	0.01 mg/ m ³	0.01 mg/ m ³
Tin	7440-31-5		0-10	2 mg/ m ³	2 mg/ m ³
*Zinc	7440-66-6	**	0-45	15 mg/ m ³ total dust 5 mg/ m ³ respirable fraction	10 mg/ m ³ total dust 5 mg/ m ³ respirable fraction
Phosphorus	7723-14-0		.10 -.35	0.1m/mg ³	0.1 m/mg ³

*Exposure limits are for the metal oxide which may be released during melting operations.

** Indicates a toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know act of 1986 (SARA) and 40 CFR Part 372.

*** Indicated that the chemical has a CAS number for OSHA of 1330-43-4.

III. Physical Data

As shipped, these products are nonflammable, nonexplosive, non-reactive, and nonhazardous.

Physical State: SOLID

Odor and Appearance: Bare or Flux coated rods, no odor. The product is y insoluble in water.
Melting Point: 1500-2100°F
Boiling Point: N/A
Vapor Pressure: N/A
Specific Gravity: 7.5-9.0 g/cc

IV. Fire and Explosion Hazard

Flammable explosive: NO NFPA: Non flammable.

Under what conditions?: Only the packaging is flammable.

Extinguishing media: Welding arcs and flames can ignite combustible materials. This product will not burn unless under high temperature as molten metal. Never use water as an extinguishing agent around molten metal. Water will react violently with any molten metal. The alloy is stable, non-hazardous solid at room temperatures. Material may react with acids, bases or oxidizers. Material does not present a significant health hazard under normal handling and storage conditions. See ANZI Z49.1 "Safety in Welding and Cutting" and "Safe Practices" Code: SP, published by the America Welding Society, PO Box 351040, Miami, FL 33135 and NFPA 512 "Cutting and Welding Processes", published by the National Fire Protection Association, Batterymarch Park, Quincy MA 02269 for additional fire prevention and protection information.

V. Reactivity Data

Stability: Stable. Polymerization will not occur.

Incompatible Products: None currently known.

Hazardous decomposition products: Brazing fumes and gases are diverse. The composition and quantity of these fumes and gases are dependent on the material being worked, the process, procedures, and consumables used. Other factors influencing the fumes and gases are coatings on the material being worked (paint, galvanizing, plating), the number of operations and the volume of the work area, the ventilation, the position of the worker's head with regard to the fume plume, the presence of contaminants in the atmosphere (chlorinated hydrocarbon vapors from cleaning or painting activities). When the materials are consumed, the fume and gas decomposition products are different from the chemicals listed in Section II. Decomposition products of normal operations include products of the volatilization of the ingredients, plus the other items noted above.

Material may react with acids, bases or oxidizers.

Reasonably Expected Decomposition Products from normal use include a complex of oxides and fluorides of the materials listed in Section II as well as carbon monoxide, carbon dioxide, and nitrogen oxides. (Refer to "Characterization of Arc Welding Fume" available for the American Welding Society). THE TLV LIMIT FOR MANGANESE (0.2 mg/m³) MAY BE REACHED BEFORE THE GENERAL LIMIT FOR WELDING FUMES OF 5 mg/m³ IS REACHED. MONITOR FUMES FOR MANGANESE LEVELS. The only way to truly identify the decomposition products is by sampling and analysis. An appropriate sample may be obtained from inside the worker's helmet, if worn, or from the worker's breathing zone. See ANSI/AWS F1.1 "Method for Sampling Airborne Particles Generated by Welding and Allied Processes," available from the American Welding Society.

VI. Physical and Health Hazard Data

Brazing may create one or more of the following health or physical hazards. Fumes and gases can be dangerous to health. Arc rays, flame, and molten metal can injure eyes and skin. Noise can damage hearing. Brazing alloys are frequently used with a fluoride-based flux. Flux fumes should be included in the evaluation of hazards.

Route of Overexposure: The primary route is inhalation. Skin contact, eye contact, and ingestion are possible.

Absorption by skin is normally insignificant. When these products are used as recommended by Aufhauser, and when used with proper ventilation, exposure is likely to remain below hazardous levels.

Effects of acute (short-term) overexposure: Effects of overexposure to fumes, gases and dusts may include irritation of the eyes, lungs, nose and throat. Some toxic gases associated with welding may cause pulmonary edema, asphyxiation and death. The exposure levels in Section 2 are relevant to fumes and dusts. Consult the latest NIOSH requirements and American National Standard Z49.1 "Safety in Welding and Cutting".

Chronic exposure to Copper, Zinc and Manganese may cause metal fume fever. Symptoms of metal fume fever include fever, fatigue, dryness of throat, head and body ache, and chill. Chronic exposures may affect the central nervous system leading to emotional disturbances, gait and balance difficulties and paralysis. Overexposure to copper may result in skin and hair discoloration. Nickel has been identified as a potential cancer causing agent. Prolonged exposure to silver may produce a greyish-blue discoloration of the skin. The product will not irritate the skin or eyes in bulk form. Particulates may cause dermatitis due to mechanical irritation. X-rays may reveal chronic exposure. But x-rays may also reflect such non-welding factors as smoking, etc.

Preexisting conditions aggravated by overexposure: Individuals with allergies or impaired respiratory function may have symptoms worsened by exposure to brazing fumes. However such reaction cannot be predicted due to varieties of fumes and decomposition products.

Exposure Limits: for the ingredients listed in Section II. TLV-TWA's should be used as a guide in the control of health hazards and not a recommendation as to what is safe and what may be excessive. When these products are used as recommended by Aufhauser, and when the preventative and common sense measures indicated in this MSDS are followed, overexposure to hazardous substances will not occur.

Emergency First Aid: Ingestion: Ingestion of significant amounts of copper alloy is unlikely. Seek medical help if large quantities of product are ingested. Inhalation: Remove from exposure to dust or fume if present. Seek medical help if required. Skin Contact: Wash thoroughly with soap and water. Eye Contact: Flush with water for at least 15 minutes. Seek medical help if required. Burns: Apply cold, clean compress and call a physician.

Carcinogenic Assessment: NTP? NO. IARC Monographs? NO OSHA Regulated? NO.

VII. Precautions for Safe Handling and Use

Read and understand the manufacturer's instructions and the precautionary label on this product. See American National Standard Z-49.1 "Safety in Welding and Cutting," published by the American Welding Society, PO Box 351040, Miami FL 3313 and OSHA Publication 2206 (29 CFR 1910), US Government Printing Office, Washington DC 20402 for more information on any of the following:

Ventilation: Use enough ventilation; local exhaust of the welding area, 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 away from the fumes.

Respiratory Protection: Use a respirable fume respirator or air supplied respirator when welding in confined spaces or where the local exhaust or ventilation is insufficient.

Eye protection: Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to a lighter shade which gives a sufficient view of the weld zone. Provide protective screens and flash goggles to protect others in the work area.

Protective clothing: wear head, hand and body protection which help to prevent injury from radiation, sparks, molten metal, and electrical shock. See ANZI Z-49.1/ As a minimum, this includes welder's gloves, a protective face shield, a fire retardant apron, arm protectors, hats, shoulder protection. Thick fire resistant, clothing should protect all parts of the body. Train the welder in safety procedures.

Procedure for cleanup of leaks or spills: Not Applicable.

Waste disposal Method: Prevent waste from contaminating surrounding environment. Discard any product residue, disposable container, or liner in an environmentally safe manner, in compliance with Federal, State, and Local regulations.

Special Precautions and Comments

Wet material should never be charged into a molten bath.

Wash hands thoroughly after use, especially before eating.

SARA Title III Section 313 Supplier Notification

Brass/bronze rods, parts and wire which undergo process operations producing a dust or fume are subject to the reporting requirements of section 313 of Title III of the superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.

Revised by: Health and Safety Department

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty, express or implied regarding the 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.