

**MATERIAL SAFETY DATA SHEET (MSDS)**  
 For Welding Consumables and Related Products  
 Conforms to OSHA Hazard Communication Standard 29CFR 1910.1200  
 Standard Must Be Consulted for Specific Requirements

**SECTION I – IDENTIFICATION**

Manufacturer/Supplier: Weldcote Metals	Telephone No: 704-739-4115
Address: 842 Oak Grove Road, Kings Mountain, NC 28086	Emergency No: 704-739-4115
Trade Name: Weldcote 30CF (Bag-20), Weldcote 35CF (Bag-35), Weldcote 40TCF (Bag-28) Weldcote 50NCF (Bag-24), Weldcote 50CF (Bag-6), Weldcote 45CF (Bag-5) Weldcote 56CF (Bag-7)	Classification: AWS A5.8

**SECTION II – HAZARDOUS MATERIALS\***

**IMPORTANT:** This section covers the materials from which the product is manufactured. The fumes and gases produced during welding with the normal use of this product are covered under Section V.

\*The term “HAZARDOUS MATERIALS” should be interpreted as a term required and defined in OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200 however the use of this term does not necessarily imply the existence of any hazard.

**COMPONENT 1: Bare Wire or Rods**

Ingredients	CAS No.	% Weight	Exposure Limit		
			OSHA PEL	ACGIH TLV	Other
Silver	7440-22-4	30-56	10 ug/m <sup>3</sup>	100 ug/m <sup>3</sup>	10 ug/m <sup>3</sup>
Copper	7440-50-8	20-38	0.2 mg/m <sup>3</sup>	0.2 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Zinc	7440-66-6	16-32	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Nickel	7440-02-0	0-2	1 mg/m <sup>3</sup>	1.5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Tin	7440-31-5	2-5	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	100 mg/m <sup>3</sup>

**COMPONENT 2: Flux Coating on Rods**

Substance	CAS No.	% w/w	Exposure Limits in Air					OTHER
			ACGIH-TLV		OSHA-PEL		IDLH	
			TLV mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	PEL mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>		
Boric Acid	10043-35-3	10-35	NE	NE	NE	NE	NE	NE
Proprietary Fluoride Compound (exposure limits are for inorganic, solid Fluoride compounds, as F; 7789-75-5)	Proprietary	30-50	2.5, A4 (Not Classifiable as a human carcinogen)	NE	2.5	NE	NE	DFG MAKs: TWA = 2.5 (Inhalable Fraction)  PEAK = 5 • MAK 30 min., average value  Carcinogen: IARC-3, TLV-A4
Methacrylate/Aliphatic & Naphthenic Hydrocarbon Compound	Proprietary		NE	NE	NE	NE	NE	NE
Water	7732-18-5	Balance	NE	NE	NE	NE	NE	NE

Occupational Safety and Health Administration 29 CFR 1910.1000 Permissible Exposure Limit (PEL). American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV[R]).

NE = Not Established

**SECTION III – PHYSICAL DATA**  
NOT APPLICABLE

**SECTION IV – FIRE AND EXPLOSION HAZARD DATA**

Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VI.

**SECTION V – REACTIVITY DATA**

**Hazardous Decomposition Products**

Welding fumes and gases cannot be classified simply. The composition and quantity of these fumes and gases are dependent upon the metal being welded, the procedures followed and the electrodes used.

Workers should be aware that the composition and quantity of fumes and gases to which they may be exposed, are influenced by: coatings which may be present on the metal being welded (such as paint, plating, or galvanizing), the number of welders in operation 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 procedure). When the electrode is consumed, the fumes and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. The composition of these fumes and gases are the concerning matter and not the composition of the electrode itself. Decomposition products include those originating from the volatilization, reaction, or oxidation of the ingredients shown in Section II, plus those from the base metal, coating and the other factors noted above.

Reasonable expected fume constituents of this product would include: Complex oxides of copper, zinc, nickel, tin. Fluorides will also be present.

Substance	CAS No.	Exposure Limit (mg/m <sup>3</sup> )	
		OSHA PEL	ACGIH TLV
Copper Oxide	7440-50-8	1	1
Zinc Oxide	7440-66-6	10	10

Gaseous reaction products may include carbon monoxide and carbon dioxide

Ozone and nitrogen oxides may be formed by the radiation from the arc.

One method of determining the composition and quantity of the fumes and gases to which the workers are exposed is to take an air sample from inside the welder's helmet while worn or within the worker's breathing zone. See ANSI/AWS F1.1 publication available from the American Welding Society 550 N.W. LeJeune Road, Miami, Florida 33126.

**Stability:** This product is stable.

**Incompatibility:** Silver-acetylene and ethlenimine form explosive compounds with silver. If silver is treated with nitric acid in the presence of ethyl alcohol, silver fulminate can be formed which can be detonated. Fine powder and hydrogen peroxide solutions may explode. Incompatible with oxalic and tartaric acid. Bromoazide explodes on contact with silver foil. **Copper**-ammonium nitrate, bromates, iodates, chlorates, ethylene oxide, hydrazoic acid, potassium oxide, dimethyl sulfoxide+trichloroacetic, hydrogen peroxide, sodium peroxide, sodium azide, sulfuric acid, hydrogen sulfide & air, lead azide, and acetylenic compounds. Copper ignites on contact with chlorine, fluorine, chlorine trifluoride, and hydrazinium nitrate.

**SECTION VI – HEALTH HAZARD DATA**

**Threshold Limit Value:** The ACGIH recommended general limit for welding fume NOC (Not otherwise classified) is 5 mg/m<sup>3</sup>. ACGIH-1985 preface states: "The TLC-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 V for specific fume constituents, which may modify this TLV.

**Common Entry is by Inhalation.**

**Effects of Overexposure:** Inhalation of welding fumes and gases can be dangerous to your health. Short-term (acute) overexposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Continued inhalation of welding fumes could cause loss of consciousness and death. Nickel oxides present in the fume may cause tightness around the chest, fever and allergic reactions in some people. Long-term (chronic) overexposure to welding fumes can lead to

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siderosis (iron deposits in lung) and is believed to affect pulmonary function. Repetitive exposure to fluoride fumes and/or gases may cause excessive calcification of the bones and ligaments of the ribs, pelvis and spinal column. Workers exposed to nickel compounds have a higher incidence of lung and nasal cancers. Nickel compounds are on the IARC (International Agency for Research of Cancer) list as posing a carcinogenic risk to humans.

Arc Rays can injure eyes and burn skin.  
Electric shock can kill.  
See Section VII.

**Emergency and First Aid Procedures:** Call for medical assistance. Use first aid procedures recommended by the American Red Cross. If breathing is difficult – give oxygen. If not breathing – use CPR (cardiopulmonary resuscitation).

#### **Carcinogenicity**

OSHA (29 CFR 1910.1200) lists Nickel as possible carcinogens.

### **SECTION VII – CONTROL MEASURES AND PRECAUTIONS FOR SAFE HANDLING AND USE**

Read and understand the manufacturer's instructions and precautionary label on this product. See American Standard Z49.1 Safety in Welding and Cutting, published by the AMERICAN WELDING SOCIETY, 550 N.W. LeJeune Road, Miami, Florida 33126 and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington D.C. 20402 for more details on the following topics.

**Ventilation:** Use plenty of ventilation and/or local exhaust at the arc, to keep the fumes and gases below the threshold limit value within the worker's breathing zone and the general work area. Welders should be advised to keep their head out of the fumes.

**Respiratory Protection:** Use respirable fume respirator or air supplied respirator when welding in a confined space or general work area where local exhaust and/or ventilation does not keep exposure below the threshold limit value.

**Eye Protection:** Wear a helmet or face shield with a filter lens shade number 12-14 or darker. Shield other workers by providing screens and flash goggles.

**Protective Clothing:** Wear approved head, hand and body protection, which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. This would include wearing welder's gloves and a protective face shield and may include arm protectors, apron, hats, shoulder protection, as well as dark substantial clothing. Welders should be trained not to allow electrically live parts to contract the skin or wet clothing and gloves. The welders should insulate themselves from the work and ground.

**Waste Disposal Method:** Discard any product, residue, disposal container, or liner in an environmentally acceptable manner approved by Federal, State and Local regulations.

The opinions expressed in this MSDS are those of qualified experts within **Weldcote Metals**. We believe that the information contained herein is current as of the date of this MSDS. Since the use of this information and these opinions and the conditions of use of these products are not within the control of **Weldcote Metals**, it is the user's obligation to determine the conditions of safe use of these products.

**Weldcote Metals believes this data to be accurate and to reflect qualified expert opinion regarding current research. However, Weldcote Metals can not make any expressed or implied warranty as to this information.**