



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

The following information and recommendations to best of our knowledge is reliable, however due to conditions outside our control we assume no liability or guarantee with the use of this information. Safety data may or may not be required from other source to ensure all safety guidelines are acceptable for your application.

SECTION I - IDENTIFICATION

| | | |
|---|----------------------|----------------------------|
| Manufacturer/Supplier: Washington Alloy Company | | Telephone No: 704-598-1325 |
| Address: 7010-G Reames Road, Charlotte, NC 28216 | | Emergency No: 704-598-1325 |
| Trade Name: SUPERFLOW® 25, 30, 35, 45, 50, 50N ⁽ⁿ⁾ | GROUP I II | Specification: AWS A5.8 |
| 25CF, 30CF, 35CF, 38TCF ^(t) , 40CF, 40NCF ⁽ⁿ⁾ , 40TCF ^(t) , 45CF, 45TCF ^(t) , 50CF, 50NCF ⁽ⁿ⁾ , 54NCF ⁽ⁿ⁾ , 56CF ^(t) , 56NCF ^{(n)(z)} , 65CF, USA 72CF ^(z) | | |
| CF = cadmium free, ^(z) = ZINC FREE, ⁽ⁿ⁾ = CONTAINS NICKEL, ^(t) = CONTAINS TIN | | |

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.

| Ingredients | GROUP | CAS No. | % Weight | Exposure Limit (mg/m ³) | |
|----------------------------------|--------------------------|------------|----------|-------------------------------------|-------------------------------|
| | | | | OSHA PEL | ACGIH TLV |
| Silver (4) | I, II | 7440-22-4 | 25 – 72 | 0.01 | 0.1 |
| Cadmium (4) | I | 7440-43-9 | 2 – 24 | 0.005 | 0.01 (total dust) .002 (Resp) |
| Copper (4) | I,II | 7440-50-8 | 15 – 40 | 0.1 , 1 (dust) | 0.2, 1(Dust) |
| Zinc (4) | I, II | 7440-66-6 | 5.5 – 34 | 5, 10 ** | 5, 10 ** |
| Tin ^(t) | | 7440-31-5 | 6.0 | 2.0 | 2.0 |
| Nickel (4) ⁽ⁿ⁾ | | 7440-02-0 | 3.0 | 1.0 | 1 , 1.5 (inhalable fraction) |
| Borax Glass, Anhydrous (1) | Only on Flux coated rods | 1303-96-4 | 2.0 | 10 | 1.0 |
| Acrylic Copolymer (non-haz) (1) | | none found | 1.0 | none found | none found |
| Residual Monomer (non regst) (1) | | none found | 1.0 | none found | none found |
| Boric Acid (1) | | 10043-35-3 | 7.0 | none found | none found |

Single values shown are maximum (1) Flux coating on the flux coated rods, *Ceiling Limit, (Resp) = Respiratory/ Respiration, **Short Term Exposure Limit (4) Subject to reporting requirements of Section 302, 304, 311, 312, and 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40CFR 370 and 372, Short Term Exposure Limit (STEL) Values proposed by OSHA in 1989. Other elements or ingredients may be present but in quantities much less than 1%. 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]). (Resp) = Respiratory/ Respiration, Welding and cutting of products that contain Chromium may produce hexavalent chromium and YOU should read and follow OSHA 's final rules Fed Register # :71:10099-10385 dated 02-28-2006.

SECTION III - PHYSICAL DATA

As shipped these are solid wire that are nonflammable, non-explosive, non-reactive and non –hazardous –and may be flux coated

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 & STABILITY DATA

Hazardous Decomposition Products

Welding and brazing fumes and gases cannot be classified simply. The composition and quantity of these fumes and gases are dependent upon the metal being joined, the procedures followed and the alloys 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 or brazed (such as paint, plating, or galvanizing), the number of workers in operation and the volume of the work area, the quality and amount of ventilation, the position of the worker'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 or alloy 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 filler 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, cadmium, nickel, tin. Fluorides will also be present. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc or flame.

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, hydrochloric 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- ENTRY DATA

Common Entry Is by Inhalation - During the welding/brazing processes inhalation of fumes may give the most common route of over exposure. Contact with skin, eyes, ingestion or injection should not be a source for exposure with proper protection.

SECTION VII- Threshold Limit Value

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not otherwise classified) is 5 mg/m³. 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.

SECTION VIII- HEALTH HAZARD DATA

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) over-exposure to welding fumes can lead to 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 and/or cadmium oxides have a higher incidence of lung and nasal cancers. Nickel and cadmium 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.

SECTION IX- Emergency and First Aid Procedures

Emergency and First Aid Procedures: Remove to fresh Air. Call for medical assistance. Use first aid procedures recommended by the American Red Cross. If breathing is difficult or not breathing – give oxygen or use CPR (Cardiopulmonary Resuscitation) by trained personnel.

Consult a physician if irritation of the eyes and skin or flash burns develops after exposure.

SECTION X- TOXICOLOGICAL INFORMATION

Acute toxicity: Overexposure or inhalation of large amounts of welding/brazing fumes may cause symptoms such as metal fume fever, dizziness, nausea, dryness and irritation of your nose, throat or eyes as well as other lung disease.

Chronic toxicity: Overexposure or prolonged inhalation of large amounts of welding/brazing fumes with chromium compounds may cause cancer.

Other overexposure or prolonged inhalation of large amounts of welding fumes symptoms related may include damage to the central nervous system, respiratory system, skin and could affect organs such as pancreas and liver

Carcinogenicity ;OSHA (29 CFR 1910.1200) lists Cadmium and Nickel possible carcinogens.

California Proposition 65 ;These products contains or produces chemicals known to the State of California to cause cancer, and/or birth defects (or other reproductive harm).(Health and Safety Code section 25249.5 et seq.)

SECTION XI -SAFE HANDLING AND STORAGE

Handling: Do not eat or drink while using these products and ensure proper ventilation is used.

Storage: Store in a cool dry place away .Avoid extreme temperatures and incompatible items such as acids, oxidizers and halogens.

SECTION XII -DISPOSAL & WASTE

Waste Disposal Method: Recycle when possible. Discard any un-wanted product, residues, containers, or liners in a suitable disposal container in an environmentally acceptable manner approved by Federal, State and Local regulations

SECTION XIII- CONTROL MEASURES AND PERSONAL PROTECTION

Read and understand the manufacturer's instructions and precautionary label on this product and your employer's safety practices. 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 CFR1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 37954, Pittsburg, Pa 15250-7954 for more details on the following topics.

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

Respiratory Protection: Use respirable fume respirator or air supplied respirator when working 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 to prevent injury. 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.

SECTION XIV- OTHER INFORMATION

Approval Date: 12-22-2009

NFPA CODES : FIRE: 0 HEALTH: 0 REACTIVITY: 0

Washington Alloy Co. Believes that the information contained in this (MSDS) Material Safety Data Sheet is accurate. However,

Washington Alloy Co. does not express or implies any warranty with respect to this information.

Download the most current MSDS and product information @ www.weldingwire.com