



SAFETY DATA SHEET (SDS)

Stainless Steel SOLID WIRE AND RODS
REVISED 5-2018
SDS Number : 005-SS

For Welding Consumables and Related Products
 Conforms to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
 OSHA Hazard Communication Standard 29CFR 1910.1200
 Standard Must Be Consulted for Specific Requirements

SECTION I – IDENTIFICATION of Product and Company

Manufacturer/Supplier: Washington Alloy Company	Recommended use: Arc and Gas Welding	Restriction on use: Not Known	Telephone No: 704-598-1325
Address: 7010-G Reames Rd., Charlotte, NC 28216			Emergency No: 704-598-1325
Trade Name of Stainless Steel : 209; 218; 219; 307; 308; 308Si; 308L; 308H; 308L-HiSi; 309; 309H; 309L; 309L-HiSi; 309LMO; 310; 312; 316; 316L; 316H; 316LSi; 317L; 318; 320; 320LR; 321; 330; 347; 347H; 363; 409CB; 410; 410NiMo; 420; 430; 630 (17-4 PH); {16-8-2}; 2209; 904L (385); 2553; 2594			Specification: AWS A5.9 (Bare Stainless) Spools and cut lengths
17-7PH; {21-6-9}; 349; 440C; 13-8Mo; 15-5PH; 15-7Mo; A286; AM355;			
2283L; 253MA; Tensileweld			
			Others

SECTION II – COMPOSITION / INFORMATION ON INGREDIENTS

GHS Hazard Classification: Not Classified / **Label Elements - Hazard symbol and Signal word =** No symbol or signal word

Hazard statement and Precautionary statement = Not applicable

Other Hazards which do not result in GHS classification and Overview: Electric shock can kill. Wear approved head, hand and body protection, which help to prevent injury from radiation, sparks and electrical shock. Welding arc and sparks can ignite combustibles or flammable materials. 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. Arc Rays can injure eyes and burn skin. Read and understand the manufacturer's instructions and precautionary label on this product and your employer's safety practices. See Section XIII.

As shipped these are odorless, solid rods that are nonflammable, non-explosive, non-reactive and non-hazardous and may be copper coated.

Substance: 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. Fumes may affect eyes, skin, respiratory system as well as pancreas and liver.

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 filler is consumed, the fumes and gas decomposition products generated are different in percent and form from the ingredients listed in Section III, 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 III, plus those from the base metal, coating and the other factors noted above.

Reasonable expected fume constituents of this product would include: Complex oxides or compounds of iron, manganese, silicon, copper, aluminum, titanium, and zirconium. (Other complex oxides may be present when using fluxes).

Chemical Identity	CAS No.	EINECS#
Carbon dioxide	124-38-9	204-696-9
Carbon monoxide	630-8-0	211-128-3
Nitrogen dioxide	10102-44-0	233-272-6
Ozone	10028-15-6	233-069-2
Manganese (Mn)	7439-96-5	231-105-1
Nickel (Ni)	7440-02-0	231-111-4
Chromium oxide	1308-38-9	215-160-9

SECTION III – COMPOSITION / INFORMATION ON INGREDIENTS

*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.

Chemical Identity Ingredients	CAS No.	EINECS#	Chemical Identity Ingredients	CAS No.	EINECS#
Iron (Fe) (limits as oxide fume)	7439-89-6	231-096-4	Molybdenum (Mn)	7439-98-7	231-107-2
Manganese (Mn) (limits as fume)	7439-96-5	231-105-1	Nickel (Ni)	7440-02-0	231-111-4
Silicon (Si)	7440-21-3	231-130-8	Copper (Cu)	7440-50-8	231-159-6
Carbon	7440-44-0	231-153-3	Chromium (Cr)	7440-47-3	231-157-5
Tungsten	7440-33-7	231-143-9	Vanadium (V) Respirable dust	7440-62-2	231-171-1
Cobalt	7440-48-4	231-158-0	Niobium	7440-03-1	231-113-5
Tantalum	7440-25-7	231-125-5	Titanium	7440-32-6	231-142-3

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Other elements or ingredients may be present but in quantities much less than 1%.⁽¹⁾ 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; (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. 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]). *Ceiling Limit **Short Term Exposure Limit

SECTION IV – FIRST AID MEASURES

Contact with skin, eyes, ingestion or injection should not be a source for exposure with proper protection.

Ingestion: Avoid contact with metal fume or powders which may lead to ingestion

Inhalation: If breathing has stop or difficult move to fresh air and as needed perform artificial respiration. Call medical assistance or physician.

Skin Contact: Remove any contaminated clothing, gloves or other personnel equipment and promptly wash/flush with mild soap and water. For reddish or blistered skin from thermal/arc radiation promptly wash/flush with water. Get medical assistance or physician help as needed.

Eye Contact: Arc radiation can injure eyes and also cause an arc flash – if this occurs, move to dark room removing lenses as required and get rest and cover eyes with non-stick dressings (padded dressing) Removal of dust and fumes requires flushing with abundant amounts of clean water for at least 15 minutes. Get medical assistance or physician help as needed or if issues persist.

Most important symptoms/effects, acute and delayed:

Symptoms: Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, dryness or irritation of nose, throat, or eyes. Pre-existing respiratory issues may be aggregated. Long-term (chronic) over-exposure to welding fumes can lead to siderosis (iron deposits in lung) and is believed to affect pulmonary function. Manganese and Manganese compounds above safe exposure limits can affect or cause irreversible damage to the central nervous system, including the brain: symptoms may result in impaired speech and movement, lack of energy, stiffness in legs, feet, toes, muscular weakness as well as psychological disturbances. Reports of bronchitis and lung fibrosis have also been noted.

Hazards: Welding fumes and gases cannot be classified simply. Refer to Section II under Substance

SECTION V – FIRE-FIGHTING MEASURES

As shipped these are odorless, solid rods that are nonflammable, non-explosive, non-reactive and non-hazardous. Welding arcs and sparks can ignite combustibles or flammable materials. Read and understand the manufacturer's instructions and precautionary label on this product and your employer's safety practices. Read and understand: American National Standard ANSI Z49.1 *Safety in Welding, Cutting and Allied Processes*, published by the AMERICAN WELDING SOCIETY, 550 N.W. LeJeune Road, Miami, Florida 33126; OSHA *Safety and Health Standards* are published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401. Also National Fire Protection Association NFPA 51B, *Standard for Fire Prevention During Welding, Cutting and other Hot Work*

Suitable (and unsuitable) extinguishing media: As shipped these items will not burn however in the event use media recommended for the burning materials and fire situation and surroundings. No unsuitable media known at this time.

Specific hazards arising from the chemicals: Welding arcs and sparks can ignite combustibles or flammable materials

Specific protective equipment and precautions for firefighters: Wear self-contained breathing apparatus and full protective clothing in case of fire or when fumes and vapors are present. Follow general fire-fighting precautions as in the workplace.

SECTION VI – ACCIDENTAL RELEASE MEASURES

Personal Precautions, protective equipment and emergency procedures: With airborne dust and fumes be sure to use adequate engineering ventilation controls and personal protection to prevent overexposure limits recommendations found in Section VIII.

Environment precautions: Control work practices to eliminate environmental release. These products are solid metal rods, with no spill or leak hazards as shipped. If product becomes molten dam up with sand type media until it cools back to a solid and reuse/recycle as scrap.

Methods and Materials for containment and cleaning up: Solid rods can be picked up and placed back in the original container. Clean up immediately while following all safety guidelines as well as using all personal protection safety listed in section VIII. Avoid generating dust and prevent materials from entering and drains, sewers or water sources. Disposal considerations found in Section XIII. When fumes and vapors are present. Follow general fire-fighting precautions as in the workplace.

SECTION VII – HANDLING AND STORAGE

Precautions for safe handling: Handle with care wearing gloves and keep formation of airborne dust and fumes to a minimum. If needed use adequate engineering ventilation controls and personal protection to prevent overexposure limits recommendations found in Section VIII. Also read American National Standard ANSI Z49.1 *Safety in Welding, Cutting and Allied Processes*, published by the AMERICAN WELDING SOCIETY, 550 N.W. LeJeune Road, Miami, Florida 33126; OSHA *Safety and Health Standards* are published by the U.S. Government Printing Office, 732 North Capitol Street NW, Washington, DC 20401. Do not eat or drink while using these products and ensure proper ventilation is used. Wash hands after use.

Conditions for safe storage, including any incompatibilities: All employees who handle these products should be trained to handle it safely. Open packages of these products/containers on a safe stable surface and must be properly labeled at all times. Store products in original closed packages, cool dry place, while avoiding extreme temperatures or incompatible items such as acids, oxidizers and halogens. Always follow all regulations in accordance with local/regional/state/national guidelines.

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SECTION XI- TOXICOLOGICAL INFORMATION

Oral/Dermal/inhalation Iron: (Human-child); TDLo: 77 mg/kg. Oral (rat); LD50:30 gm/kg. Intraperitoneal (rabbit); LDLo: 20 mg/kg. Oral (guinea pig); LD50:20 gm/kg. Oral (rat); TDLo: 63 gm/kg/6W-C. Inhalation (rat); 250 mg/m³/6H/4W-I. Intratracheal (rat); TDLo: 450 mg/kg/15W-I. **Silicon:** Acute oral toxicity (LD50): 3160 mg/kg [Rat]. **Copper:** Acute oral LD50:481 mg/kg (rat); **Cobalt:** Acute Dermal LD50 :> 2000 mg/kg (rat) Acute Inhalation 4hours LD50:165 mg/kg (rat); **Chromium** (VI) Acute oral toxicity LD 50 (Rat): 27-59 mg/kg Inhalation (Rat 4h): 33-70 mg/m³. **Manganese:** Acute oral toxicity (LD50): 9000 mg/kg [Rat].

Skin corrosion or irritation / Serious eye damage or irritation / Respiratory or skin sensitization / Germ cell mutagenicity / Reproductive toxicity / Specific target organ toxicity – single exposure / Specific target organ toxicity – repeated exposure: Not classified **Carcinogenicity:** Arc Rays can injure eyes and burn skin. Skin cancer has been reported. **Information on the likely routes of exposures:** Ingestion is not a likely route of exposure for this product or expected under normal use. If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing. **Inhalation** of welding fumes and gases can be dangerous to your health.

Skin/Eye Contact: Arc Rays can injure eyes and burn skin. Skin cancer has been reported. International Agency for Research on Cancer IARC- has classified welding fumes, Cobalt & Nickel as a possible carcinogenic to humans (Group 2B). **Chromium** (VI) evaluation as carcinogenic to humans (Group1). **Chromium oxides** evaluation, not classified as to carcinogenicity to humans (Group 3). **National Toxicology Program (NTP)** list Nickel with Reasonably Anticipated to be a Human Carcinogen; **Chromium** (VI) known to be human carcinogen. **OSHA Specifically Regulated Substances Chromium** (VI) Cancer Symptoms related to physical, chemical and toxicological characteristics: **Inhalation: Chromium** (VI) and compounds pose a cancer risk to humans; liver damage, allergic and skin rash have been reported. Nickel and compounds pose a respiratory cancer risk, and may give skin itch to dermatitis. Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, dryness or irritation of nose, throat, or eyes. Pre-existing respiratory issues may be aggregated. Long-term (chronic) over-exposure to welding fumes can lead to siderosis (iron deposits in lung) and is believed to affect pulmonary function. Manganese and Manganese compounds above safe exposure limits can affect or cause irreversible damage to the central nervous system, including the brain: symptoms may result in impaired speech and movement, lack of energy, stiffness in legs, feet, toes, muscular weakness as well as psychological disturbances. Reports of bronchitis and lung fibrosis have also been noted.

Delayed and immediate effects and also chronic effects from short and long term exposure: There are no immediate health hazards associated with the wire or rod form of this product. Skin, respiratory, pancreas, and liver disorders may be aggravated by prolonged over-exposures to the dusts or fumes generated by these products. Pre-existing respiratory issues may be aggregated. Long-term (chronic) over-exposure to welding fumes can lead to siderosis (iron deposits in lung) and is believed to affect pulmonary function. Manganese and Manganese compounds above safe exposure limits can affect or cause irreversible damage to the central nervous system, including the brain: symptoms may result in impaired speech and movement, lack of energy, stiffness in legs, feet, toes, muscular weakness as well as psychological disturbances. Reports of bronchitis and lung fibrosis have also been noted. Treat symptoms and eliminate overexposure. **Other information during use: Inhalation acute toxicity:** Carbon dioxide LC Lo (Human, 5 min): 90000 ppm, Carbon monoxide LC 50 (Rat, 4 h): 1,300 mg/l, Nitrogen dioxide LC 50 (Rat, 4 h): 88 ppm, Ozone LC Lo (Human, 30 min): 50 ppm, Chromium (VI) LC 50 (Rat, 4 h): 33-70 mg/m³

SECTION XII- TOXICOLOGICAL INFORMATION

Ecotoxicity / Persistence and Degradability / Bioaccumulative Potential / Mobility in Soil:

Acute; Fish /Aquatic Invertebrates Aquatic Environment = Iron= LC50 Channel catfish (*Ictalurus punctatus*) > 500 mg/l, 96 hours; **Nickel** LC50 Fathead minnows (*Pimephales promelas*) 2.916 mg/l, 96 hours, **EC50 Water flea** (*Daphnia obtusa*) 1 mg/l, 48 hours ; **Copper** LC50 Fathead minnows (*Pimephales promelas*) 1.6 mg/l, 96 hours, **EC50 Water flea** (*Daphnia obtusa*) 0.102 mg/l, 48 hours, **Environment-Toxicity to Aquatic Plants LC50(green algae (scenedesmus dimorphus) 3 days) 0.0623 mg/l, ;Molybdenum** LC50 Rainbow trout, Donaldson trout (*Oncorhynchus mykiss*) 800 mg/l, 96 hours, **Manganese = EC 50 (Water flea** (*Daphnia magna*), 48 h): 40 mg/l;

Persistence and Degradability / Mobility in Soil: No data

Bioaccumulative Potential Accumulation/The product contains potentially bioaccumulating substances.

Bioaccumulative Potential

Bioconcentration Factor (BCF) Product: No data available. **Specified substance(s):** Nickel Zebra mussel (*Dreissana polymorpha*), Bioconcentration Factor (BCF): 5,000 – 10,000 (lotic) Biocentration factor calculated using dry weight tissue concentration: Copper and/or copper alloys and compounds (as Cu) Blue-green algae (*Anacystis nidulans*), Bioconcentration Factor (BCF): 36.01 (Static); Cobalt and compounds (as Co) Brown shrimp (*Penaeus aztecus*), Bioconcentration Factor (BCF) : >2,250 -<2,500 (Static)

Other Adverse Effects: Possibly harmful to aquatic life. Do not allow material to be released to the environment without proper governmental permits. No further relevant information available.

SECTION XIII- DISPOSAL CONSIDERATIONS

Disposal Methods: A void or minimize generating waste. When possible collect scrap and by-products with proper id for recycling. Waste disposal must be in accordance with appropriate Federal, National, Provincial, State, and local regulations. These products, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

SECTION XIV- TRANSPORT INFORMATION

UN Number / UN Proper shipping name / Transport Hazard class (es) / Packing group / Marine pollutant / Special Precautions: Not Regulated as Dangerous Good or Not Regulated, No international regulations