SAFETY DATA SHEET (SDS)

For Welding Consumables and Related Products

Conforms to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Standard Must Be Consulted for Specific Requirements

SECTION I – IDENTIFICATION of Product and Company

Manufacturer/Supplier: Washington Alloy Company
Address: 7010-G Reames Rd, Charlotte, NC 28216
Trade Name of Carbon Steel: 7016, 7016-1, 7016V, 7016HT, 7018, 7018-4H, 7018-H4R, 7018-1, 7018AC, 7048, 6010, 6011, 6012, 6013, 6022, 6027, 7014, 7024, 7024-1, 7028

Recommended use: Shielded Metal Arc Welding
Restriction on use: Not Known

Telephone No: 704-598-1325
Emergency No: 704-598-1325

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 contact 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, flux coated solid rods that are nonflammable, non-explosive, non-reactive and non –hazardous.

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 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 procedures). 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 concern 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.

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).

SECTION II – COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>CAS No.</th>
<th>EINECS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>124-38-9</td>
<td>204-696-9</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>630-8-0</td>
<td>211-128-3</td>
</tr>
<tr>
<td>Nitrogen dioxide</td>
<td>10102-44-0</td>
<td>-</td>
</tr>
<tr>
<td>Ozone</td>
<td>10028-15-6</td>
<td>233-069-2</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>7439-96-5</td>
<td>231-105-1</td>
</tr>
</tbody>
</table>

Other elements or ingredients may be present but in quantities much less than 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))

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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 powers from granular flux 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, 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, coated 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 the media recommended for the burning materials and fire situation and surroundings. No unsuitable media known at this time. Do not use water or halogenated on molten metals.

**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 flux coated 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:** Coated 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 and all applicable regulations.

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

**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 halogen. Always follow all regulations in accordance with local/regional/state/national guidelines.

SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

<table>
<thead>
<tr>
<th>Flux or other ingredients</th>
<th>CAS No.</th>
<th>EINECS#</th>
<th>Exposure Limit (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron (Fe) (limits as oxide fume)</td>
<td>7439-89-6</td>
<td>231-096-4</td>
<td>OSHA PEL: 10</td>
</tr>
<tr>
<td>Manganese (Mn) (limits as fume)</td>
<td>7439-96-5</td>
<td>231-105-1</td>
<td>ACGIHL TLV: 5 (Resp)</td>
</tr>
<tr>
<td>Silicon (Si)</td>
<td>7440-21-3</td>
<td>231-130-8</td>
<td>1, 3.0** , 5*</td>
</tr>
<tr>
<td>Calcium Carbonate</td>
<td>1317-65-3</td>
<td>215-279-6</td>
<td>0.02 (Resp) 0.1***</td>
</tr>
<tr>
<td>Calcium Fluoride</td>
<td>7789-75-5</td>
<td>232-188-7</td>
<td>WITHDRAWN</td>
</tr>
<tr>
<td>Titanium Oxide</td>
<td>13463-67-7</td>
<td>236-675-5</td>
<td>15 (dust) 5 (Resp)</td>
</tr>
<tr>
<td>Zircon (as quartz/Resp)</td>
<td>14940-68-2</td>
<td>238-878-4</td>
<td>10 mg/m³ ± %SiO2+2 ***</td>
</tr>
</tbody>
</table>

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Acute oral toxicity (LD50): 0 mg/kg [Rat] & 00 mg/kg [Rat].

Acute dermal toxicity: Sodium silicate Acute oral toxicity (LD50): 1.1 g/kg [Rat]. Silicon: Acute oral toxicity (LD50): 3160 mg/kg [Rat].

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: Overall Evaluation of Titanium Dioxide is listed by IARC as possibly carcinogenic to humans (Group 2B). 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. IARC has classified welding fumes as a possible carcinogenic to humans (Group 2B). Symptoms related to physical, chemical and toxicological characteristics: Inhalation: 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 aggravated. 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 these rods 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, loss 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

SECTION XII- TOXICOLOGICAL INFORMATION

Ecotoxicity: Iron = LC50 Channel catfish (Ictalurus punctatus) > 500 mg/l, 96 hours; Sodium silicate = LC50 Western mosquitofish (Gambusia affinis) 1800 mg/l, 96 hours; Manganese = EC 50 (Water flea (Daphnia magna), 48 h): 40 mg/l; Sodium silicate = EC 50 (Water flea (Ceriodaphnia dubia), 48 h): 22.94 - 49.01 mg/l; Carboxymethyl cellulose, sodium salt = EC 50 (Water flea (Ceriodaphnia dubia), 48 h): 46.04 - 165.37 mg/l

Persistence and Degradability / Bioaccumulative Potential / Mobility in Soil: No data

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: Avoid 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, 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

SECTION XV- REGULATORY INFORMATION

United States: TSCA INVENTORY STATUS: The components of these products are listed on the TSCA Inventory; CERCLA REPORTABLE QUANTITY (RQ): Manganese = Reportable quantity: Included in the regulation but with no data values. See regulation (40 CFR 302.4).

EPCRA/SARA Title III 313 Toxic Chemicals The following metallic components are listed as SARA 313 “Toxic Chemicals” and potential subject to annual SARA 313 reporting. See Section III for weight percent. Ingredient & Disclosure threshold: 1.0% de minimis concentration

Superfund Amendments and Reauthorization Act 1986 (SARA): As shipped: Immediate (Acute) In use: Immediate, delayed

California Proposition 65: WARNING: This product may expose you to chemicals including [Cobalt (II) Oxide, Titanium dioxide (airborne, unbound particles of respirable size)], Chromium (hexavalent compounds), Nickel, Lead and Lead Compounds, Carbon Black, Cadmium, Beryllium and Beryllium Compounds which are known to the State of California to cause cancer, and [Chromium (hexavalent compounds), Nickel, Iron, and Zine oxide] which are known to the State of California to cause birth defects and/or other reproductive harm. For more information go to https://www.p65warnings.ca.gov/

Titanium Oxide and Quartz is on the California Proposition 65 lists.

US State Regulations: See Section III for contents and weight percent

Alaska-Designated Toxic and Hazardous Substances: Aluminum Welding Fumes, Carbon Black, Manganese, and Molybdenum.

California-Permissible Exposure Limits for Chemical Contaminants: Aluminum, Aluminum oxide Calcium Fluoride, Manganese, Silicon, Fluorides, Iron, Iron oxide, and Zinc oxide: California Proposition 65 - Titanium Oxide listed in the following- Carcinogens & Reproductive Toxic Listed Substance listed 9-2-2011

Florida-Substance List: Aluminum, Manganese, Molybdenum, and Zirconium.

Illinois-Toxic Substance List: Aluminum, Carbon Black, Copper, Manganese, Molybdenum, and Silicon.

Kansas-Section 302/313 List: Aluminum, Copper, and Manganese.

Massachusetts-Substance List: Aluminum, Aluminum oxide, Carbon Black, Calcium Carbonate, Iron oxide, Kaolin, Manganese, Silicon, Titanium Oxide, Zinc oxide and Zirconium.

Michigan - Critical Materials Register: Copper.


Missouri-Employee Information/Toxic Substance List: Aluminum, Carbon Black, Copper, Manganese, Molybdenum, Silicon, and Zirconium.

New Jersey-Right to Know Hazardous Substance List: Aluminum, Aluminum oxide, Calcium Fluoride, Calcium Carbonate, Fluorides, Iron oxide, Kaolin, Manganese, Silicon, Titanium, Titanium Oxide, Zinc oxide and Zirconium.

North Dakota-List of Hazardous Chemicals, Reportable Quantities: Copper.


Rhode Island-Hazardous Substance List: Aluminum Welding Fumes, Carbon Black, Manganese, Molybdenum, Silicon, and Zirconium.

Texas-Hazardous Substance List: Carbon Black, Manganese, and Molybdenum.

West Virginia-Hazardous Substance List: Carbon Black, Manganese, and Molybdenum.

Wisconsin-Toxic and Hazardous Substances: Carbon Black, Manganese, and Molybdenum.
SECTION XVI- OTHER INFORMATION

Approval Date: 2-28-2019  NEW SDS Number: 002-CS 70xx
HMIS® ratings Health: 2 Flammability: 0 Physical hazard: 0
NFPA CODES: FIRE: 0  HEALTH: 2  REACTIVITY: 0
U.S. DOT = Material is not hazardous and is not considered as a dangerous item. Washington Alloy Co. Believes that the information contained in this (SDS) 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 SDS and product information @ www.weldingwire.com