



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),
OSHA Hazard Communication Standard 29CFR 1910.1200
Standard Must Be Consulted for Specific Requirements

SDS: Buildup/Hardfacing Coated Electrodes
REVISED 4-2021
SDS Number : 010

SECTION I – IDENTIFICATION of Product and Company

Manufacturer/Supplier: Washington Alloy Company	Recommended use: Metal Working SMAW	Restriction on use: Not Known	Telephone No: 800-830-9033
Address: 825 Groves Street, Lowell, NC 28098			Emergency No: 800-830-9033
Trade Name of Buildup & Hard facing Electrodes: NI-MANG 14, MANGANESE 900, Ni-Mang Chrom 15, Chrome-Tung 600(tool Hard), WM540, Sugar Rod/Sugar Rod 60, Buildup 300, Buildup 400, Hardface 700, Everwear 800, Chrome carb 60, Wear Hard 80, Wear Hard 67, Wear Hard 60 (2640), Manganese 500			Specification: INTERNAL

SECTION II – HAZARD IDENTIFICATION & INFORMATION

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 with flux coating that are nonflammable, non-explosive, non-reactive and nonhazardous with a metallic luster.

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 electrode 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 chromium, magnesium, manganese, silicon, copper, aluminum, titanium, zinc and zirconium may be present. (Other complex oxides may be present when using fluxes). Ingredients listed in Section III

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	-
Ozone	10028-15-6	233-069-2

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 (Mo)	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 (C)	7440-44-0	231-153-3	Chromium (Cr)	7440-47-3	231-157-5
Tungsten (W)	7440-33-7	231-143-9	Vanadium (V) Respirable dust	7440-62-2	231-171-1
Cobalt (Co)	7440-48-4	231-158-0	Niobium (Nb or Cb)	7440-03-1	231-113-5
Tantalum (Ta)	7440-25-7	231-125-5	Titanium (Ti)	7440-32-6	231-142-3
Aluminum (Al)	7429-90-5	231-072-3			

Chemical Composition Percent by Weight Undiluted Weld Metal

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Name	C	Mn	Fe	P	S	Si	Cu	Ni	Co	Al	Ti	Cr	Nb (Cb) plus Ta	Mo	V	W
Everwear 800	0.50-1.50	3.0		0.03	0.03	3.0						3.0-9.0		2.5		
Hardface 700	0.30-1.00	3.0		0.03	0.03	1.5						5.0		1.5		
Chrome-Tung 600 (Tool Hard)	1.25	1.25	88.0	0.03	0.03	1.75	1.25	1.75	0.75			6.75		9.5	2.25	2.30
WM540	1.25	3.0	94.0	0.03	0.03	1.25										
Manganese 500	.5-1.0	12.0-16.0	Bal			1.5		2.5-5.0								
Buildup 400	0.75	0.75	96.0	0.03	0.03	0.94	0.75	0.75	0.05			4.75		1.5		
Buildup 300	1.25	5.0		0.03	0.03	3.0						4.25		2.5		
Wear Hard 80	7.5	1.25	Bal	0.03	0.03	1.5						25.0	9.0			
Wear Hard 67	1.25	1.25	88.0	0.03	0.03	2.25									1.75	
Wear Hard 60 (2460)	4.25	1.75	Bal	0.03	0.03	1.75	0.50	0.75	0.75	0.50	0.75	17.75	15.75	0.50	0.25	0.25
Chrome carb 60	4.75	1.25		0.05	0.05	1.75						35.0				
Sugar Rod/Sugar rod 60	6.0	2.25		0.05	0.04	2.25		1.25				32.30				
Ni-Mang 14	1.0	12.0-16.0				1.5		2.0-5.0				0.50				
Ni-Mang Chrom 15	2.50	16.0	82.0	0.9	0.9	1.25	1.25	5.0	1.25			8.0	0.50	0.50	1.5	
Manganese 900	1.50	11.0-18.0	Bal	0.03	0.03	1.25		3.0				4.0		2.50		
			Single digits are maximum ; 0.12 *When specified by purchaser ; ^(b) Other Elements Total 0.50 max ^(c) Other Elements Total 1.0 max													

Flux-cored composition listed below - not included in above weld metal percent

Chemical Identity	% by Weight	CAS No.	EINECS#	Chemical Identity	% by Weight	CAS No.	EINECS#
Calcium Carbonate	< 2.5	1317-65-3	215-279-6	Potassium Silicate	< 6.0	1312-76-1	233-001-1
Calcium Fluoride	< 6.0	7789-75-5	232-188-7	Sodium Silicate	< 6.0	1344-09-8	239-981-7
Mica	< 6.0	12001-26-2	215-479-3	Titanium Dioxide	5-28	13463-67-7	236-675-5
Feldspar	< 2.5	68476-25-5	270-666-7	Potassium Oxide	< 2%	12136-45-7	235-227-6
Quartz	< 6.0	14808-60-7	238-878-4	Bentonite	< 2%	1302-78-9	215-108-5
(Amorphous Silica Fume)		(69012-64-2)	(273-761-5)	Barium Compounds	< 2%	7440-39-3	

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

Chemical Identity	CAS No.	EINECS#	Exposure Limit (mg/m3)	
			OSHA PEL	ACGIH TLV
Iron (limits as oxide fume)	7439-89-6	231-096-4	10, 5 (Resp)	5(Resp)
Nickel ⁽¹⁾	7440-02-0	231-111-4	1	1, 1.5 (inhalable fraction)
Molybdenum (Mo)	7439-98-7	231-107-2	15, 5 (Resp)	10, 20**, 0.5 ^(SC) (Resp)
Manganese (limits as fume) ⁽¹⁾	7439-96-5	231-105-1	1, 5*, 3.0**	0.2
Silicon (Si)	7440-21-3	231-130-8	15 (dust) 5 (Resp)	10, 20 **, 3(Resp)
Chromium (Cr) ^(C) ⁽¹⁾	7440-47-3	231-157-5	1 (metal) 0.5 (Cr III) 0.005 (Cr VI)	0.5 (metal) 0.5 (Cr III) 0.05 (Cr VI)
Copper (Cu) ⁽¹⁾	7440-50-8	231-159-6	1 (dust) 0.1(fume)	1 (dust) 0.2 (fume)
Tantalum	7440-25-7	231-125-5	5.0	5.0,10.0**
Aluminum (Al)	7429-90-5	231-072-3	15 (total dust) 5 (Resp)	10 (dust)1 (Resp)
Vanadium (V) Respirable dust	7440-62-2	231-171-1	0.05 as V ₂ O ₅	0.5 * as V ₂ O ₅
Niobium	7440-03-1	231-113-5	NA	NA
Titanium (Ti) Oxide dust (1) (2)	7440-32-6	231-142-3	15(total particulate) 5 (Resp)	10, 20**
Tungsten	7440-33-7	231-143-9	5.0 ,10.0**	5.0 ,10.0**
Flux or other ingredients on coated electrodes				
Titanium Oxide ⁽¹⁾	13463-67-7	236-675-5	15, 5 (Resp)	10, 20**
Magnesite	546-93-0	208-915-9	15, 5 (Resp)	10, 3(Resp)
Calcium Carbonate	1317-65-3	215-279-6	15, 5 (Resp)	10, 3(Resp)
Calcium Fluoride ⁽¹⁾	7789-75-5	232-188-7	2.5 (as F)	2.5 (as F)
Sodium Silicate	1344-09-8	239-981-7	Nothing Found	Nothing Found
Aluminum Silicates	1332-58-7	265-064-6	2 (Resp)	15 total particulate; 5 (Resp)
Potassium Silicates	1312-76-1	215-199-1	Nothing Found	Nothing Found
Cryolite (limits as fluorides) ⁽¹⁾	15096-52-3	239-148-8	2.5	2.5
Quartz	14808-60-7	238-878-4	0.1 (Respirable)	0.025 (Resp)

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 Single values are maximum,

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 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 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 and Section VIII

SECTION V – FIRE-FIGHTING MEASURES

As shipped, these are odorless, solid rods with a flux coating 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. 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 solid metal rods with flux coating, 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. 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, strong bases, oxidizers, and halogens. Always follow all regulations in accordance with local/regional/state/national guidelines.

SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Flux or other ingredients	CAS No.	EINECS#	Exposure Limit (mg/m ³)	
			OSHA PEL	ACGIH TLV
Aluminum (Al) ^{(1) (2)}	7429-90-5	231-072-3	15 (total dust) 5 (Resp)	10 (dust) 1 (Resp)
Copper (Cu) ^{(A) (1)}	7440-50-8	231-159-6	1 (dust) 0.1 (fume)	1 (dust) 0.2 (fume)
Magnesium (Mg)	7439-95-4	231-105-1	15 (total particulate)	10
Zinc (Zn) Fume ⁽¹⁾	7440-66-6	231-175-3	5 mg/m ³ 5 mg/m ³ (Resp) 15 mg/m ³ (total dust)	2 (Resp) 10**

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 ***Inhalable fraction ⁽²⁾ Requirement on ER70S-2

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits used a guideline in control for health hazards but not an indication of safe and dangerous exposure limits **TLV - Threshold Limit Value** - an airborne concentration of a substance, which represents

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conditions under which it is generally believed that nearly all workers, may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour & BEI - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. **OSHA** - U.S. Occupational Safety and Health Administration. **PEL** - **Permissible Exposure Limit** - this exposure value means the same as a TLV, except that it is limits guideline by OSHA. **Eye Protection:** Wear a helmet or face shield with a filter lens shade number 12-14 or darker for arc welding. Shield other workers by providing screens and flash goggles. Use face-shield with filter lens of appropriate shade number (per ANSI Z49.1-1988, "Safety in Welding and Cutting"). **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. **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. **HYGIENE/ WORK PRACTICES:** With all chemicals/materials, avoid getting these products ON YOU or IN YOU. Wash hands after handling these products. Do not eat or drink while handling these products. Use ventilation and other engineering controls to minimize potential exposure to these products.

SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Appearance / Color / Odor / Physical state / Form: Solid rods with flux coating that are nonflammable, non-explosive, non-reactive and non –hazardous

Odor Threshold / pH / Flash Point / Evaporation Rate / Flammability (Solid, Gas) / Upper & Lower Flammability or Explosive Limits: No data available
Vapor Pressure & Density / Relative Density / Solubility(water/other) / Partition coefficient (n-octanol/water) / Auto-ignition Decomposition temperature : No data available
Information based Aluminum: BOILING POINT: 4566°F (2519°C) FREEZING/MELTING POINT: 1220°F (660 °C) SPECIFIC GRAVITY (water = 1): 2.7

SECTION X – STABILITY and REACTIVITY

Chemical stability: These products are considered stable as shipped and under normal conditions

Possibility of hazard reactions: No data and will not occur **Conditions to avoid:** Avoid exposure to extreme temperatures, Incompatible materials

Incompatible materials: Incompatible items such as acids, oxidizers, halogens, Strong bases, mineral acids, and halogens. **Hazardous decomposition**

products: Read Substance in Section II. 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). The best method to determine the actual composition of generated fumes and gases is to take an air sample from inside the welder's helmet if worn or in breathing zone. For additional information, refer to the American Welding Society Publication, "Fumes and Gases in the Welding Environment".

SECTION XI- TOXICOLOGICAL INFORMATION

Oral/Dermal/inhalation: Acute oral toxicity; 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]. **Manganese:** Acute oral toxicity (LD50): 9000 mg/kg [Rat]. **Gallium:** LD50 [oral, rat]; N/A; LC50 [rat]; N/A; LD50 Dermal [rabbit]; **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:** Hexavalent chromium compounds is listed by IARC (1) & ACGIH (A1) as Confirmed human carcinogen. Overall Evaluation of welding fume 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 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

SECTION XII- TOXICOLOGICAL INFORMATION

Ecotoxicity: Iron = LC50 Channel catfish (Ictalurus punctatus) > 500 mg/l, 96 hours; **Manganese** = EC 50 (Water flea (Daphnia magna), 48 h): 40 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, 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.

SECTION XV- REGULATORY INFORMATION

United States: TSCA INVENTORY STATUS: The components of these products are listed on the TSCA Inventory; **CERCLA REPORTABLE QUANTITY (RQ):** Beryllium, Chromium, Chromium compounds, Copper, Manganese, Zinc, 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:** Aluminum, Chromium, Copper, Manganese, Vanadium, Zinc all @ 1.0% de minimis concentration; Hexavalent chromium compounds 0.1% de minimis concentration N90; Zinc oxide 1.0% de minimis concentration N982

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

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

California Proposition 65:  **WARNING:** This product may expose you to chemicals including [Quartz, Chromium Hexavalent chromium compounds, Titanium dioxide (airborne, unbound particles of respirable size), which are known to the State of California to cause cancer, and [Chromium (hexavalent compounds),] which are known to the State of California to cause birth defects and/or other reproductive harm. Hexavalent chromium, Titanium Oxide and Quartz is on the California Proposition 65 lists. Hexavalent chromium compounds listed in the following- Carcinogens & Reproductive Toxic Listed Substance, Carcinogenic Substance 2/27/1987, Developmental Toxin 12/19/2008, Female Reproductive Toxin 12/19/2008, Male Reproductive Toxin 12/19/2008 For more information go to <https://www.p65warnings.ca.gov/> Also read and understand (Health and Safety Code section 25249.5 et seq.)

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

Alaska-Designated Toxic and Hazardous Substances: Aluminum Welding Fumes, Manganese,

California-Permissible Exposure Limits for Chemical Contaminants: Aluminum, Aluminum oxide, Manganese, Silicon, Chromium, Magnesium, Magnesium Oxide, Copper, Iron, Iron oxide, Titanium, Titanium Oxide, and Zinc oxide

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

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

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

Massachusetts-Substance List: Aluminum, Aluminum oxide, Chromium, Copper, Magnesium, Magnesium Oxide, Manganese, Vanadium, Iron oxide, Silicon, Zinc, Titanium Oxide, Zinc oxide and Zirconium.

Michigan - Critical Materials Register: Copper.

Minnesota-List of Hazardous Substances: Aluminum Welding Fumes, Manganese, and Silicon.

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

New Jersey-Right to Know Hazardous Substance List Aluminum, Aluminum oxide, Chromium, Copper, Iron oxide, Hexavalent chromium compounds Magnesium, Magnesium Oxide, Manganese, Silicon, Titanium, Titanium Oxide, Vanadium, Zinc, Zinc oxide and Zirconium.

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

Pennsylvania-Hazardous Substance List: Aluminum, Aluminum oxide, Chromium, Copper, Iron oxide, Hexavalent chromium compounds, Iron oxide, Magnesium, Manganese, Silicon, Welding Fume, Vanadium, Zinc oxide and Zirconium

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

Texas-Hazardous Substance List: Manganese, and Molybdenum.

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

Wisconsin-Toxic and Hazardous Substances: Manganese, and Molybdenum.

SECTION XVI- OTHER INFORMATION

Approval Date: 4-6-2021 SDS Number: 010

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.

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