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: Washington Alloy Company	Telephone No: 704-598-1325
Address: 7010-G Reames Road, Charlotte, NC 28216	Emergency No: 704-598-1325
Trade Name:	Specification:
Ni-59 (ERNiCrMo-13)Ni-60 (ERNiCu-7), Ni-61 (ERNi-1), Ni-62 (ERNiCrFe-5),Ni-65 (ERNiFeCr-1), Ni-82 (ERNiCr-3), Ni-625 (ERNiCrMo-3),Ni-718 (ERNiFeCr-2), C276 (ERNiCrMo-4), Ni-92 (ERNiCrFe-6),X (ERNiCrMo-2), W (ERNiMo-3), Ni-601 (ErNiCrFe-11), Ni-617 (ERNiCrCoMo-1), 686 (ERNiCrMo-14), 725 (ERNiCrMo-15), ,B-2 (ERNiMo-7), C22® (ERNiCrMo-10), G30® (ERNiCrMo-11),Ni-69 (ERNiCrFe-8)	AWS A5.14/A5.14M Nickel and Nickel-Alloy Bare Welding Electrodes and Rods
Cascade 17M&17T (Ni-99), Cascade 18M&18T (Ni-55)	AWS A5.15 – Cast Iron
Ni-67(CuNi) (ERCuNi)	AWS A5.7 – Copper and Copper Alloy
Ni-600 (5687), Ni-69 (5778)	AMS

SECTION II
HAZARDOUS INGREDIENTS/Identity Information

IMPORTANT: This section covers materials from which this products are manufactured.

Flux or other ingredients	CAS No.	Exposure Limit (mg/m_3)		Approx. %
		OSHA PEL	ACGIH TLV	
Nickel (1)	7440-02-0	1	1 , 1.5 (inhalable fraction)	35-99
Iron	7439-89-6	5	10 (as Fe_2O_3)	0-20
Chromium (Cr) (1) (C)	7440-47-3	1 (metal) 0.5 (Cr III) 0.005 (Cr VI)	0.5 (metal) 0.5 (Cr III) 0.05 (Cr VI)	0-26
Molybdenum (Mo)	7439-98-7	15 (Mo)	10 (Mo), 20**	0-30
Manganese (limits as fume) (1)	7439-96-5	1 , 5* , 3.0**	0.2	.1-4.0
Silicon (Si)	7440-21-3	15 (dust) 5 (Resp)	10, 20 **	.1-1.25
Columbium	7440-03-1	5	5	0-5
Copper (Cu) (1)	7440-50-8	1 (dust) 0.1(fume)	1 (dust) 0.2 (fume)	0-30
Aluminum (Al) (1)	7429-90-5	15 (total dust) 5 (Resp)	10 (dust) 5 (Resp)	0-2
Titanium (Ti) Oxide dust	7440-32-6	15(total particulate) 5 (Resp)	10	0-3.5
Vanadium (V) Respirable dust(1)	7440-62-2	0.05 as V_2O_5	0. 5 * as V_2O_5	0-.6
Tungsten	7440-33-7	5, 10 **	5, 10 **	0-4.5

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 : (C) TLV & PEL for water soluble Cr. III and Cr. VI ,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 These products contain about 70% Copper and 30% Nickel(CuNi). Chromium and Nickel have been recognized as a suspect carcinogen by NTC and IARC

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SECTION III - PHYSICAL DATA

As shipped these are odorless, solid rods that are nonflammable, non-explosive, non-reactive and non-hazardous

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Welding arc and sparks can ignite combustibles and flammables. Refer to American National Standard Z49.1 for fire prevention during the use of welding and allied procedures.

SECTION V – REACTIVITY DATA

HAZARDOUS DECOMPOSITION PRODUCTS: The composition and quality of welding fumes and gases are dependent upon the metal being welded, the process, procedure, and the electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings off the metal being welded (such as paint, plating or galvanizing), the number of welders and the volume of the work area, the quality and the 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 activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Fume and gas decomposition products, and not the ingredients in the electrode, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrode may form. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II, plus those from the base metal and coating, etc., as noted above. Fume limit for Cr (VI) may be reached before limit of 5 mg/m3 for general welding fumes is reached. Watch the (Cr VI) level. Other complex oxides may be present when using fluxes.

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Reasonably expected fume constituents of this product could include primarily oxides of nickel, secondarily complex oxides of iron, chromium, manganese, silicon, copper, titanium, aluminum, molybdenum and columbium. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. In addition to the shielding gases like argon and helium, whenever they are employed. 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. SEE AWS PUBLICATION: "FUMES AND GASES IN THE WELDING ENVIRONMENT" HAZARDOUS POLYMERIZATION: NOT APPLICABLE

"Electric arc-welding may create one or more of the following health hazards: Fumes and gases can be dangerous to your health. Arc Rays can injure eyes and burn skin. Electric Shock can kill.

EFFECTS OF OVEREXPOSURE: "short-term over exposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes, tightness in chest, fever and allergic reactions. (See Sections IV and VII)." "Long-term (chronic) over exposure to welding fumes may lead to siderosis (iron deposit in lungs) and is believed by some investigators to affect pulmonary function."

EMERGENCY & FIRST AID PROCEDURES: Remove to fresh air, obtain medical attention. Employ first aid techniques recommended by the American Red Cross.

SECTION VI– HEALTH HAZARD DATA

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.

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. Chromium (VI) compounds present in the fume may cause abdominal pain, diarrhea, muscular weakness and convulsions. Continued inhalation could cause loss of consciousness and death. Chromium (VI)compounds may burn eyes. Chromium compounds may cause allergic reactions in some people. 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. Constant inhalation of chromium (VI) compounds may cause an ulceration and perforation of the nasal septum as well as liver and kidney damage. Repetitive overexposure to nickel oxides may lead to lung fibrosis or pneumoconiosis. Workers exposed to chromium (VI) compounds and/or nickel oxides have a higher incidence of lung and nasal cancers. Chromium and 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.

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) –NTP and/or IRAC lists Nickel and Chromium and there compounds as 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 VII – SPILL OR LEAK PROCEDURES NOT APPLICABLE

SECTION VIII – SPECIAL PROTECTION INFORMATION

Read and understand the manufacturer's instructions and precautionary label on this product and your employer's safety practices. See 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 for more details on the following topics.

Ventilation – Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases from the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

Respiratory protection – use respirable fume respiratory or air-supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below a recommended exposure lime.

Eye Protection – Wear helmet or use face shield with filter lens. Provide protective screens and flash goggles, if necessary, to shield others. As a rule of thumb start with a shade that is too dark to see the weld zone. Then go, the next lighter shade, which gives sufficient view of the weld zone.

Protective Clothing – Wear hand, head and body protection, which help to prevent injury from radiation, sparks, and electric shock. See ANSI Z49.1.At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground."

Other precautions: Use exhaust system to clear welding fumes. Make sure that inhaled air does not contain fume constituents above permissible exposure levels.

NOTE: Other precautions and additional safety information on welding and cutting, see the Welding Handbook, Vol. 1, Chapter 9, Safe Practices in Welding and Cutting, available from American Welding Society, Inc. 550 NW LeJeune Road, P.O. Box 33126, Miami, Fl.

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

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