

STAINLESS STEEL FLUX CORED WELDING WIRE

REV. 11

WEAR MANAGEMENT SERVICES, 100 GARNET ST., ALIQUIPPA, PA 15001

DATE: 11-16-05

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SECTION 1 - PRODUCT IDENTIFICATION

Product Type: Stainless Steel Flux Cored Open Arc

Wear Management Trade Name: HF2238

*Hard Facing Rod***SECTION 2 - HAZARDOUS INGREDIENTS**

IMPORTANT! This section covers the material from which this product is manufactured. The fumes and gases produced during welding with this product are covered by section 5. The term "hazardous" in Hazardous Ingredients should be interpreted as a term required and defined in OSHA Hazard Communication Standard (29 CFR Part 1910.1200)

Ingredient	CAS NO.	OSHA PEL	Exposure Limit (mg/m ³)	
			ACGIH TLV	WT. %
Iron	7439-89-6	5	not reported	30-61
**Chromium	7440-47-3	1	0.5	3-32.0
**Nickel	7440-02-0	1	1	0-33.0
Molybdenum	7439-98-7	15	10(20 STEL)	0-5.0
Carbon	7440-44-0	3.5	3.5(7 STEL)	0-0.30
Columbium	7440-03-1	5 ND	5 ND	0-2.0
Silicon	7440-21-3	none	10(20 STEL)	0-1.2
**Manganese	7439-96-5	5 CL	5 CL	0-5.0
**Copper	7440-50-8	1	1	0-3.5
Lithium	7439-93-2	none	not reported	0-5.0
Calcium Fluoride	7789-75-5	2.5(As F)	2.5(As F)	0-5.0
Titanium Dioxide	13463-67-7	15	10(20 STEL)	0-5.0
Potassium Titanate	12030-97-6	none	5 ND	0-5.0
Iron Oxide	1309-37-1	10	5(15 STEL)	0-5.0
Aluminum Oxide	1344-28-1	none	10(20 STEL)	0-5.0
Silicon Oxide	7631-86-9	5	3	0-5.0

NOTES - CL = Ceiling Limit, STEL = Short Term Exposure Limit, TLV = Threshold Limit Value, ND = Nuisance Dust, PEL = Permissible Exposure Limit - OSHA(29CFR1910)

*These products contain one or more toxic chemicals subject to the reporting requirements of section 313 of Title III of SARA and 40 CFR Part 372. A double asterisk preceding the component name identifies these chemicals. This information must be on all MSDSs that are copied and distributed for this material. If you are unsure, if you must report, or require more information, call the EPA EPCRA hotline at 1-800-535-0202 or 1-202-479-2449 in Washington DC and Alaska.

SECTION 3 - PHYSICAL AND CHEMICAL CHARACTERISTICS Material is a tube with fluxes and metal alloys inside.
NO HAZARDS EXIST UNTIL THIS PRODUCT IS USED IN ARC WELDING

SECTION 4 - FIRE AND EXPLOSION DATA

Nonflammable Welding arc and sparks can ignite flammable products. Refer to American National Standard Z49.1, Safety in Welding and Cutting published by the American Welding Society, 550 N.W. LeJeune Road Miami, FL 33126 for fire prevention and protection information during the use of welding and allied procedures.

SECTION 5 - HAZARDOUS DECOMPOSITION PRODUCTS

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedures, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coating on the metal being welded (such as paint, plating, or galvanizing), the number of welders 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 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 2. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 2, plus those from the base metal and coating, etc., as noted above.

Expected fume constituents of this product would include: fluorides, complex oxides of nickels, chromium, tungsten, nickel, iron, calcium, manganese, silicon, titanium, and molybdenum. Also nickel and nickel compounds, chromium and chromium compounds, molybdenum and molybdenum compounds.

The following chemicals may also be present in the fumes:

<u>SUBSTANCE</u>	<u>CAS NO.</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Manganese	7439-98-5	5 CL	1 CL
Nickel	7440-02-0	1	1

The following chemicals may also be present in the fumes:

<u>SUBSTANCE</u>	<u>CAS NO.</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Silica(amorphous)	7631-86-9	5	3
Nickel(soluble)	7440-02-0	1	0.1(0.3 STEL)
Iron Oxide(Fe_3O_4)	1309-38-2	5	5(10 STEL)
Chromium Oxide	1333-82-0	0.5	0.5
Calcium Fluoride	7789-75-5	2.5(As F)	2.5(As F)
Chromium VI Compounds	-	0.5	0.05
Calcium Oxide	1305-78-8	none	2
Molybdenum	7439-98-7	15	10(20 STEL)
Titanium Dioxide	13463-67-7	15	10(20 STEL)
Columbium	7440-03-1	one	10
Aluminum	7429-90-5	none	5

SECTION 6 - HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding Fume NOC(not otherwise classified) is $5mg/m^3$. ACGIH - 199x preface states "The TLV-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." Most welding, even with primitive ventilation does not produce exposures inside the welding helmet above $5mg/m^3$. See Section 5 for specific fume constituents, which may modify the TLV.

FUMES AND GASES CAN BE DANGEROUS TO YOUR HEALTH

AGGRAVATION of preexisting respiratory or allergic conditions may occur in some workers.

PRIMARY ROUTES OF ENTRY are the respiratory system, eyes, and/or skin.

Electric arc welding may create one or more of the following health hazards:

Short term (acute) overexposure to welding fumes may result in discomfort such as: dizziness, nausea, dryness or irritation of nose, throat, lungs, and eyes (see Sections 5 and 7).

Long Term (chronic) overexposure to welding fumes can result in: chronic respiratory problems, iron buildup in the lungs, bone erosion, reduced pulmonary functions and nervous disorders. Nickel, chromium and their compounds are listed in the current annual report on carcinogens prepared by the National Toxicology Program. Nickel and chromium must be considered possible carcinogens under OSHA (29CFR1910.1200). The International Agency for Research on Cancer has indicated that nickel and certain nickel compounds are probably carcinogenic for humans, but that the specific compounds which may be carcinogenic cannot be specified precisely. This conclusion was based on experience in certain nickel refining operations. Chromium has also been listed by IARC because of "sufficient evidence for carcinogenicity of chromium and certain chromium compounds". The studies forming the basis for the conclusion were from operations different from the production or welding of nickel and chromium alloys. Recent epidemiological studies of workers melting and working alloys containing nickel/chromium have found no increased risk of cancer. Nevertheless, exposure limits for these and all others must be maintained below the levels specified in Sections 2 and 5.

EMERGENCY FIRST AID PROCEDURES: Call for medical aid. Employ first aid techniques recommended by the American Red Cross.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding and Cutting published by the American Welding Society, and OSHA Publication 2206 (29CFR1910), US Government Printing Office, Washington D.C. 20402 for more detail on many of the following.

VENTILATION: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV's in 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 respirator or air supplied, respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

EYE PROTECTION: Wear helmet or use face shield with filter lens. Select shade from AWS publication F2.2. Provide protective screens and flash goggles, if necessary, to shield others.

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

WASTE DISPOSAL METHOD: Prevent waste from contamination surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, compliant with federal, state, and local regulations.

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