

ALLOY RODS CORPORATION
MATERIAL SAFETY DATA SHEET (MSDS)

For Welding Consumables and Related Products
Complies with OSHA Hazard Communication Standard 29 C.F.R. 1910.1200

SECTION I - IDENTIFICATION	
Identity: WEAR-O-MATIC COMPOSITE HARD SURFACING WIRES	
Manufacturer's Name: ALLOY RODS CORPORATION	
Address: P. O. Box 517, Wilson Avenue, Hanover, PA 17331	
Product Classification(s): AMS 55.21, EFWM-A1	Product Trade Name(s): WEAR-O-MATIC NI-MN; 3; 6; 12; 15; 40; 8R; 7; VM
Emergency Telephone No. - 717/637-6911	Telephone No. for Information - 717/637-6911
REMAINDER OF WIRES ARE NOT CLASSIFIED	

SECTION II - HAZARDOUS INGREDIENTS	
IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V. THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.	

Ingredient	(CAS No.)	Exposure Limit (mg/Hr)	Source
Iron	(7439-89-6)	10-5	(1) (2)
Chromium [Cr]	(7440-47-3)	1-0-5	(1) (2)
Silicon	(7440-21-3)	10	(2)
Calcium	(7440-70-2)	(N/A)	(3)
Titanium Dioxide	(13463-67-7)	10	(2)
Sodium Fluoride	(68476-25-5)	(N/A)	(3)
Zirconium Silicate	(7440-67-2)	5	(1) (2)
Chromium Carbide	(7440-47-3)	1-0-5 (4)	(1) (2)
Tungsten	(7440-33-7)	5	(2)
Graphite	(7782-42-5)	2-5	(2)
Quartz	(14808-80-7)	0-1	(2)
Calcium Fluoride	(7784-75-5)	2-5 as F	(1) (2)
Titanium	(7440-32-8)	(N/A)	(3)
Nickel	(7440-02-0)	1	(1) (2)
Molybdenum	(7439-98-7)	5	(1) (2)
Manganese	(7439-96-5)	5 c1	(1) (2)

1. Occupational Safety and Health Administration, 29 C.F.R. 1910.1000 Permissible Exposure Limit (PEL).
2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV).
3. Not known; nuisance particulate concentration per OSHA 1910.1000, Table 2-3, is 5 mg/M³ respirable dust.
4. Chromium exposure limit.
(A) in 3, 6, 12, 15, 40, 8R, 7, VM, (B) in 3, 6, 12, 15, 40, 8R, 7, VM, (C) in 3, 12, 40, Super
MH, 7, (D) in 3, (E) in 3, (F) in 3, (G) in 3, (H) in 3, (I) in 3, (J) in 3, (K) in 3, (L) in 3, (M) in 3, (N) in 3, (O) in 3, (P) in 3, (Q) in 3, (R) in 3, (S) in 3, (T) in 3, (U) in 3, (V) in 3, (W) in 3, (X) in 3, (Y) in 3, (Z) in 3, (AA) in 3, (AB) in 3, (AC) in 3, (AD) in 3, (AE) in 3, (AF) in 3, (AG) in 3, (AH) in 3, (AI) in 3, (AJ) in 3, (AK) in 3, (AL) in 3, (AM) in 3, (AN) in 3, (AO) in 3, (AP) in 3, (AQ) in 3, (AR) in 3, (AS) in 3, (AT) in 3, (AU) in 3, (AV) in 3, (AW) in 3, (AX) in 3, (AY) in 3, (AZ) in 3, (BA) in 3, (BB) in 3, (BC) in 3, (BD) in 3, (BE) in 3, (BF) in 3, (BG) in 3, (BH) in 3, (BI) in 3, (BJ) in 3, (BK) in 3, (BL) in 3, (BM) in 3, (BN) in 3, (BO) in 3, (BP) in 3, (BQ) in 3, (BR) in 3, (BS) in 3, (BT) in 3, (BU) in 3, (BV) in 3, (BW) in 3, (BX) in 3, (BY) in 3, (BZ) in 3, (CA) in 3, (CB) in 3, (CC) in 3, (CD) in 3, (CE) in 3, (CF) in 3, (CG) in 3, (CH) in 3, (CI) in 3, (CJ) in 3, (CK) in 3, (CL) in 3, (CM) in 3, (CN) in 3, (CO) in 3, (CP) in 3, (CQ) in 3, (CR) 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SECTION III - PHYSICAL AND CHEMICAL DATA

These products as shipped are nonhazardous, nonflammable, nonexplosive, and nonreactive.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Nonflammable: Welding arc and sparks can ignite combustibles. See 2-49.1 referenced in Section VII.

MSDS-20.1-1-2

Date Revised: 04/26/88

SECTION VI - HEALTH HAZARD DATA	Threshold limit value: The ACGIH recommended general limit for welding fume NIOSH (Not Otherwise Classified) is 5 mg/M³. The ACGIH 1984-85 reference states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm limits between safe and dangerous concentrations." See Section V for specific fume constituents which may modify this TLV. Effects of overexposure: Fumes and gases can be dangerous to your health. Aggravation or preexisting respiratory or allergic conditions may occur in some workers. SHORT-TERM (ACUTE) OVEREXPOSURE to welding fumes may result in irritation, or distress, or irritation of nose, throat, or lung (from deposits in the lung) and is believed by some investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin. ELECTRIC SHOCK can kill. See Section VII. Emergency & First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross. HAZARD IDENTIFICATION: NFPA 704: 1 ARC HAZARD/2: 0 OSHA REGULATED: 10 CFR, 191.101
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HAZARDOUS DECOMPOSITION PRODUCTS.

Welding fumes cannot be classified simply. Their composition and quantity 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: coatings on the metal being welded (such as paint, plating, or galvanizing), number of welds and volume of work or the quantity and amount of ventilation, position of 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. The primary route of entry of welding fumes and gases is by inhalation.

When the electrode is consumed, the fume and gas decomposition products are different in percent and form from the ingredients listed in section II. Decomposition products include those originating from the metal, coating, etc. as noted above. These components are as virtually always present as complex compounds and not as metals (characterization of Arc Welding Fume: American Welding Society).

Reasonably expected fume constituents from these products would include fluorides, where present, and complex oxides of iron, manganese, and silicon and, where present, complex oxides of chromium, molybdenum, nickel, tungsten, and vanadium. The following table shows these products where the fumes of Mn, Cr VI, and Ni may reach their limits of 1.0 mg/M³, 0.05 mg/M³, and 1.0 mg/M³, respectively before the general limit of 5 mg/M³ is reached.

Fume Constituent
Mn
Cr VI
Ni
Mn-Mn, Ni, Super Mn
12, Mn, 15, 40, Super Mn

Product

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet. It worn, or in the worker's breathing zone. See ANSI/ANS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.