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## MATERIAL SAFETY DATA SHEET

For U.S. Manufactured Welding Consumables and Related Products.  
May be used to comply with OSHA'S Hazard Communication Standard, 29 CFR 1910. 1200 and Superfund  
Amendments and Reauthorization Act (SARA) of 1986, Public Law 99-499.  
Standard must be consulted for specific requirements.

DATE PREPARED:

### Section I – IDENTIFICATION

Material Name: 0\$\* ; Pild Vteel wet welding electrodes;  
0\$\* ; Pild Vteel wet welding electrodes.

Manufacturer: Magnum, 8979 Lager Road, Phelan CA 92371

Emergency Tel.: ( 760-868-6748  
Facsimile: ( 760-868-6749  
Classification: AWS A5.1  
Product Type For: Group "A" Shielded Material  
Arc Welding (SMAW) Carbon Steel

**NOTE: This electrode series is for wet welding applications only.**

### Section II – HAZARDOUS MATERIALS (IMPORTANT)

This section covers the materials from which this product is manufactured. The fumes and gases produced during welding with normal use of this product are covered by Section 5.

The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA Hazard Communication Standard (29CFR Part 1910.1200). No hazard exists until this product is used in welding.

#### **Exposure Limit (mg/m3)**

<u>INGREDIENT</u>	<u>% WEIGHT</u>	<u>CAS NO.</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Iron	70 – 90	7439-89-6	Not Reported	Not Reported
Manganese	1 – 6	7498-96-5	5 CL*	5 CL*
Potassium Silicate	<5	1312-76-1	Not Found	Not Found
Sodium Silicate	3 – 15	1344-09-8	Not Found	Not Found

NOTES: mppcf = millions of particles per cubic foot of air \*CL – ceiling limit

### SECTION III – PHYSICAL / CHEMICAL CHARACTERISTICS (Not applicable)

### SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Welding consumables applicable to this sheet as shipped are non-reactive, non-flammable, non-explosive and essentially non-hazardous until welded. Welding arcs and sparks can ignite combustibles and flammable products. See American National Standard Z49.1 referenced in Section 7.

### SECTION V – REACTIVITY DATA (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: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work areas, 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.

It is understood, however, that the elements and or oxides to be mentioned are virtually always present as complex oxides and not as metals. (Characterization of Arc Welding Fume: American Welding Society). The elements or oxides listed here correspond to the ACGIH categories located in TLV (Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment).

Reasonably expected constituents of the fume would include: Primarily Iron oxides; secondarily complex oxides of manganese, titanium, silicon, potassium, and sodium.

Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

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 if worn or in the worker's breathing zone. (See ANSI / AWS F1.1, available from the American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126. Also, from AWS is F1.3 "Evaluating Contaminants in the Welding Environment – A Sampling Strategy Guide", which gives additional advice on sampling). At a minimum, materials listed in this section should be analyzed.

<u>INGREDIENT</u>	<u>CAS. NO.</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
IRON OXIDE	1309-37-1	10 5	(as Fe <sub>2</sub> O <sub>3</sub> )
MANGANESE	7439-96-5	5 CL*	1,3STEL** / fume
SILICON OXIDE	7631-86-9	5	3
TITANIUM OXIDE	13463-67-7	15	10

\* CL = Ceiling Limit

\*\*Stel: Short Term Exposure Limit

### SECTION VI – HEALTH HAZARD DATA

The ACGIH recommended general limit for Welding Fume NOC (Not Otherwise Classified) is 5 mg/m<sup>3</sup>. ACGIH – 1988 preface states the TLV-TWA should be used as fine lines between safe and dangerous concentrations. See Section 5 for specific fume constituents which may modify this TLV.

### EFFECTS OF OVEREXPOSURE

Electric arc welding may create one or more of the following health hazards: FUMES AND GASES can be dangerous to your health.

SHORT – TERM (ACUTE) OVEREXPOSURE to welding fumes may cause allergic reactions in some people and/or result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat or eyes.

PRIMARY ROUTES OF ENTRY are the respiratory system, eyes and/or skin. IRON, IRON OXIDE, MANGANESE – Remove from over exposure and apply artificial respiration if needed. Wash eyes or skin with water to remove dusts.

LONG - TERM (CHRONIC) OVEREXPOSURE may lead to Siderosis (iron deposits lungs) and is believed by some investigators to affect pulmonary functions.

PRIMARY ROUTE OF ENTRY is the respiratory system.

IRON, IRON OXIDE – Long term overexposure to iron fumes can cause deposits of iron in lungs. This condition is called “Siderosis”. Lungs will clear in time when exposure to iron and its compounds ceases. Iron and Magnetite (Fe<sub>3</sub>O<sub>4</sub>) are not regarded as fibrogenic materials.

MANGANESE – Long term overexposure to manganese compounds may affect the central nervous system. Symptoms include muscular weakness, tremors, similar to Parkinson’s disease. Behavioral changes and changes in handwriting may also appear. Employees exposed to manganese compounds should get quarterly medical examinations for early detection of manganism.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill.

See Section 7.

### **EMERGENCY AND FIRST AID PROCEDURES**

Call for medical aid. Employ first aid techniques recommended by the American Red Cross. Eyes & Skin: If irritation or flash burns develop after exposure, consult a physician.

### **CARCINOGENICITY**

The chemicals used for these products are not considered as possible carcinogens under OSHA (29 CFR 1910, 1200).

### **SECTION 7 – PRECAUTIONS FOR SAFE HANDLING & 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, 550 N.W. LeJeune Rd., Miami, FL 33126 and OSHA Publication 2206 (29 CFR 1910), U.S. Government printing Office, Washington, D.C.20402 for more details 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 workers breathing zone and the general area. Train the welder to keep his head out of the fumes.

**RESPIRATORY PROTECTION:** Use NIOSH approved or equivalent 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. As a rule of thumb begin with Shade Number 14. Adjust if needed by selecting the number of the next shade either lighter or darker. 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 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.

### **PROCEDURE FOR CLEANUP OF SPILLS OR LEAKS:**

WASTE DISPOSAL: prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state or local regulations.

SPECIAL PRECAUTIONS: IMPORTANT: Maintain exposure below the PEL / TLV. Use industrial hygiene monitoring to ensure that your use of this material does not create exposures which exceed PEL / TLV. Always use exhaust ventilation. Refer to the following sources for important additional information.

ANSI Z49.1. The American Welding Society, 550 N.W. LeJuene Rd., Miami, FL 33126 – OSHA (29 CFR 1910) U.S. Dept. of Labor, Washington D.C. 20210.

Magnum believes this data to be accurate and to reflect qualified expert opinion regarding current research. No warranty is implied.