



Pinnacle Alloys are products of SOWESCO

# 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

Supplier : Sowesco I, Ltd	Telephone Number: 800-856-9353
Address: 9384 WALLISVILLE ROAD, HOUSTON, TX 77013	Emergency Number: 713-688-9353
Classifications: E71T-11, E 71T-GS,E71T-1, E70T-1,E71T-12 E71T-8, Premier 71, Premier 712, Premier 70	Specification: AWS A5.20

## Section II – Hazardous Materials\*

**IMPORTANT:** This section covers the materials for which the product was manufactured. The fumes and gases produced during welding with the normal use of this product are covered.  
 \*The term "Hazardous Materials" should be interpreted as a term required and defined in OSHA HAZARD COMMUNICATION STANDARD (29 CFR1910.1200); however, the use of this term does not necessarily imply the existence of any hazard.

INGREDIENTS	CAS No.	WT. %	Exposure Limit (mg/m)	
			OSHA PEL	ACGIH TLV
Iron	7439-89-6	10	10*	10*
Barium compounds (as Ba)***	513-77-9	<5	****	****
Aluminum and/or Aluminum alloys (as A1)***	7429-90-5	<5	15	10
Strontium compounds (as Sr)	1633-05-2	<5	10*	10*
Fluorides (as F)	7789-75-5	1	2.5	2.5
Mineral silicates	1332-58-7	1	5**	5**
Manganese and/or Manganese alloys and compounds (as Mg)	7439-95-4	1	0.2	10*
Manganese and/or Manganese alloys and compounds (as Si)	7439-96-5	0.5	10*	1.0 (c)
Silicon and/or Silicon alloys and compounds (as Si)	7440-21-3	<0.5	10*	10*
Lithium compounds (as Li)	554-13-2	<0.5	10*	10*
Rare Earths	68476-89-1	<0.5	10*	10*

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]).

\*Not listed. Nuisance value maximum is 10 mg/m. PEL value for iron oxide is 10 mg/m. TLV value for iron oxide is 5 mg/m.

\*\* As respirable dust.

\*\*\* Subject to the reporting requirement of Sections 311, 312, and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 370 and 372.

(c) Values are for Manganese fume. STEL (Short Term Exposure Limit) is 3.0 mg/m

## Section III – Physical

NOT APPLICABLE

## Section IV – Fire and Explosion Hazard

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Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VI.

## Section V – Reactivity Data

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### 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, procedure and welding consumables 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 (i.e. paint, painting, galvanizing), the number of welders, the volume of the work area, the quality and the amount of ventilation, the position of the welders head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from the cleaning and degreasing activities). When an 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, 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. Also, new compounds not in the electrodes 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 coating, etc., as noted above.

Reasonable expected fume constituents of this product would include: Primarily iron and magnesium oxides; secondarily fluorides and complex oxides of aluminum, barium, lithium, manganese, potassium and strontium.

Maximum fume exposure guideline and PEL for this product is 5.0 mg/m for all sizes except the .045" and .035" diameters. Maximum fume exposure guideline and PEL for these diameters (based on soluble barium content) is 4.0 mg/m

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

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 workers breathing zone. See ANSI/AWS F1.1 publication available from the American Welding Society 550 N.W. Lejeune Road, Miami, and Florida 33126.

## Section VI – Health Hazard Data

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**Threshold Limit Value:** The ACGIH recommended general limit for welding fume NOC (Not otherwise classified) is 5 mg/m. 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 or Through the Eyes, Skin Contact and Ingestion.

Short-term (acute) over –exposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Soluble barium compounds present in the fumes from this product may also cause severe stomach pain, slow pulse rate; irregular heart beat, ringing of the ears, convulsions, and muscle spasms. In extreme cases can cause death.

Long-term (chronic) over-exposure to welding fumes can lead to siderosis (iron deposits in lung) and may affect pulmonary function. Manganese overexposure can affect the central nervous system, resulting in impaired speech and movement. Bronchitis and some lung fibrosis have been reported. Warning: this product when used for welding or cutting produces fumes or gases which contain chemicals known to the State Of California to cause birth defects and, in some cases, cancer. (California Health & safety Code Section 25249.5 et seq).

Arc Rays can injure eyes and burn skin.  
Electric shock can kill,  
See Section VII.

**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). Consult a physician if irritation of the eyes and skin or flash burns develops after exposure.

### Carcinogenicity

29CFR1910.1200 – Hazard Communication Standard lists possible carcinogenic information.

## Section VII – Control Measures and Precautions for Safe Handling and Use

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Read and understand the manufacturer's instructions and precautionary label on this product. See American Standard Z49.1 Safety in Welding and Cutting, published by the AMERICAN WELDING SOCIETY, 550 N.W. Lejeune Road, Miami, Florida 33126 and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington D.C. 20402 for more details on the following topics.

**Ventilation:** Use enough ventilation, local exhaust at the arc (of flame), or both, to keep the fumes and gases below the PEL's, TLV's and STEL's in the workers breathing zone and general area. Train the employee to keep his head out of the fumes. See ANSI/ASC Z49.1 Section 5.

**Respiratory Protection:** Use respirable fume respirator or air-supplied respirator when welding, brazing or soldering in a confined space or where local exhaust or ventilation does not keep exposure within limits outlined in Section II.

**Eye Protection:** Arc Rays can injure your eyes. Wear helmet or face shield with filter lens of appropriate shade number. See ANSI/ASC Z49.1 Section 4.2. Provide protective screens and flash goggles, if necessary, to shield others.

**Protective Clothing:** Wear head and body protection, which help to prevent injury from radiation, sparks, flame and electrical shock. See ANSI Z49.1. At 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 employee not to touch live electrical parts and to insulate him/herself from work and ground. Welders should not wear short sleeve shirts or short pants.

**Waste Disposal Method:** Prevent waste for contamination surrounding environment. Discard any product or residue in a disposable container or liner in an environmentally approved manner under full compliance with federal, state and local regulations.

**Emergency First Aid:** Remove from dust or fume exposure immediately and seek medical attention. If breathing has stopped perform artificial respiration and summon emergency medical aid

For other precautions or additional safety information on welding and cutting, see American Standard Z49.1-1980, *Safety in Welding and Cutting*, and the *Welding Handbook*, Volume 1, Chapter 9, Safe Practices in Welding and Cutting. Both Available from the American Welding Society, Inc. 550 N.W. Le Jeune Road, P.O. Box 351040, Miami, FL33135

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