



SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Identifier: **Stainless Steel Covered Electrodes**
Product Use: SMAW / Arc welding
Item Code: PW308L, PW309L, PW316L
Supplier Name: PowerWeld Inc.
Supplier Address: 2501 Beech Street
Valparaiso, IN 46383
Supplier Web Address: www.powerweldinc.com
Supplier Phone: 219-462-8700
1-800-826-9073
Prepared By: PowerWeld Inc.
Preparation Date: 19 January 2017

Section 2: Hazard Identification

Classification: Not applicable
Label Elements: Not applicable
Other Hazards: This product presents no hazards in its intrinsic form. However, several hazards are generated during welding operations that can be harmful. Arc rays can injure eyes and burn skin. Welding arc and sparks can ignite combustibles and flammable materials. Overexposure to welding fumes and gases can be hazardous.

Section 3: Composition/Information on Hazardous Ingredients

HAZARDOUS INGREDIENTS	CAS NUMBER	APPROXIMATE CONCENTRATION (%)
Iron (Fe)	7439-89-6	Balance
Carbon (C)	7440-44-0	0.4
Chromium (Cr)	7440-47-3	10.0 – 25.0
Nickel (Ni)	7440-02-0	10.0 – 14.0
Molybdenum (Mo)	7439-98-7	0 – 3.0
Manganese (Mn)	7439-96-5	1.0 – 3.0
Silicon (Si)	7440-21-3	0.1 – 1.0
Titanium (Ti)	7440-32-6	14.0
Aluminum (Al)	7429-90-3	1.5
Fluoride	7789-75-5	10.0
Calcium carbonate	1317-65-3	9.0
Potassium silicate	1312-76-1	6.0
Sodium silicate	1344-09-8	

Section 4: First-aid Measures

Inhalation: Inhalation may be the most common cause of overexposure due to the welding fumes. Large amounts of welding fumes will cause irritation of the nose, eyes and skin. Move from the area that has any fumes to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and transport to nearest medical facility for additional treatment.

<i>Ingestion:</i>	Not an expected route of exposure. Rinse mouth completely and drink a cup of water if conscious; obtain medical assistance when needed.
<i>Eye Contact:</i>	If arc flash or burns occur, obtain medical assistance. Large exposure to welding fumes may cause irritation to the eyes. Immediately flush upper and lower eyelids with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling persists, visit nearest medical facility for additional treatment.
<i>Skin Contact:</i>	Large exposure to welding fumes may cause irritation to skin. If burns occur, flush with clean cool water for 15 minutes; obtain medical assistance when needed.
<i>Symptoms:</i>	Dusts may cause irritation to skin and eyes.

NOTE: In all severe cases, contact physician immediately. Local telephone operators can provide number of regional poison control centre.

Section 5: Fire-fighting Measures

<i>Flammable:</i>	Non-flammable
<i>Means of Extinction:</i>	Use extinguishing method appropriate for surrounding fire.
<i>Auto-ignition Temperature:</i>	Not applicable
<i>Hazardous Combustion Products:</i>	Not available
<i>Explosion Data Sensitivity to Mechanical Impact:</i>	Not applicable
<i>Explosion Data Sensitivity to Static Discharge:</i>	Not applicable
<i>Special Equipment:</i>	See below
<i>Precautions for Fire Fighters:</i>	This product as shipped is non-flammable; however, fine chips and dust may increase the explosion rating under certain heat and other ignition hazards. Hydrogen gas and irritating fumes may form when involved in a fire or if decomposing is caused from water, alcohol or sodium hydroxides. Do not use water with any molten metals and use self-contained safety clothing/equipment in case of fires.

Section 6: Accidental Release Measures

<i>Protective Equipment:</i>	No protective equipment is required when handling product as shipped. For use during the welding process, refer to Section 8, <i>Personal Protective Equipment</i> .
<i>Emergency Procedures:</i>	If airborne dust or fume is present, ensure adequate engineering controls and personal protection to prevent overexposure. Refer to Section 8, <i>Engineering Controls</i> , for more information.
<i>Leak or Spill Procedure:</i>	Avoid generating unnecessary dust when cleaning up spills. Prevent product from entering drains, sewers and water sources. Refer to Section 13 for disposal recommendations.

Section 7: Handling and Storage

<i>Handling Procedures and Equipment:</i>	Product is stable in storage. In case of welding, avoid inhaling welding fumes; use exhausts system. Make sure inhaled air does not contain fume constituents above permissible exposure levels, as indicated in Section 8.
<i>Storage Requirements:</i>	Store in a cool, dry area in the original packaging.
<i>Incompatibilities:</i>	Keep products away from heat, flame and moisture.

Section 8: Exposure Controls/Personal Protection

Exposure Limits:

HAZARDOUS INGREDIENTS	CAS NUMBER	OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Iron (Fe)	7439-89-6	10 (as Iron oxide)	10 (as Iron oxide)
Chromium (Cr)	7440-47-3	1.0	0.5
Nickel (Ni)	7440-02-0	1	1
Molybdenum (Mo)	7439-98-7	15	10
Manganese (Mn)	7439-96-5	5	1
Silicon (Si)	7440-21-3	1	-
Titanium (Ti)	7440-32-6	15 (as Titanium dioxide)	10 (as Titanium dioxide)
Aluminum (Al)	7429-90-3	15(dust), 5(resp)	1(resp)
Fluoride	7789-75-5	2.5	2.5
Calcium Carbonate	1317-65-3	15	15
Potassium silicate	1312-76-1	10	10
Sodium silicate	1344-09-8	10	10

Engineering Controls:

Ensure proper ventilation and respiratory protection is used when welding, brazing or processing. Respiratory protection is recommended and information may be found regarding the OSHA STANDARDS (29 CFR 1910.134), as well as CSA Standards Z94.4, along with many other safety standards.

Personal Protective Equipment:

Respiratory: Use NIOSH approved respirator if exposure limits are exceeded or where dust exposures are excessive. Consider the potential for exposure to components of the coatings or base material being ground in selecting proper respiratory protection. Refer to OSHA's specific standards for where appropriate. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with OSHA 1910.134 and good industrial hygiene practice.

Hands: Cloth or leather gloves are recommended.

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.

Skin: Approved protection (ie./ welders gloves, apron, sleeves, jacket, etc.) should be worn to prevent injury from sparks and contamination of clothing.

Section 9: Physical and Chemical Properties

Physical State:	Solid
Odour and Appearance:	Odourless rod of various colours
Odour Threshold (ppm):	Not applicable
pH:	Not applicable
Melting Point:	>1100°C (2000°F)
Freezing Point:	Not applicable
Boiling Point:	Not available
Flashpoint:	Not applicable
Upper Flammable Limit (% by volume):	Not available
Lower Flammable Limit (% by volume):	Not available

Section 10: Stability and Reactivity

Chemical Stability:	Stable under normal conditions of use.
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Possible Hazardous Reactions:

This product is not reactive under normal conditions as shipped. During welding, brazing and processing: fumes, dust and gas decomposition may form.

Conditions to Avoid:

No specific action required in use/prior to use. In case of filler wire prohibit welding in areas where solvents are used because halogenated solvents may produce toxic/irritant gases

Materials to Avoid (Incompatibilities):

None known

Conditions of Reactivity:

Not available

Hazardous Decomposition By-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 3. 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 Section3, plus those from the base metal coating, etc., as noted above.

Reasonable expected fume constituents of this product would include: Complex oxides of iron, manganese, silicon, chromium, nickel, columbium, molybdenum, copper, carbon dioxide, carbon monoxide, ozone and nitrogen oxides. Some products will also contain antimony, barium, molybdenum, aluminum, columbium, magnesium, strontium, tungsten, and or zirconium. Present OSHA exposure limit for hexavalent chromium, nickel and or manganese may be reached before limit of 5 mg/m3 of general welding fumes is reached.

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 shielding gas like argon and helium when employed. Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits.

See ANSI/AWS F1.1, F1.3 and F1.5, available from the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126. See AWS publications: "Fumes & gases in the welding environment" & "Effects of welding on health"

Hazardous Polymerization:

Will not occur

Section 11: Toxicological Information

Skin Contact:

Arc rays can burn skin; skin cancer has been reported

Skin Absorption:

Not applicable

Eye Contact:

Arc rays can injure eyes

<i>Inhalation:</i>	Inhalation is the most likely route of exposure; refer to <i>Effects of Acute Exposure</i> and <i>Effects of Chronic Exposure</i> below
<i>Ingestion:</i>	Unlikely due to form of product; harmful if swallowed
<i>Effects of Acute Exposure:</i>	Overexposure or inhalation of large amounts of welding fumes may cause symptoms such as metal fume fever, dizziness, nausea, dryness and irritation of your nose, throat or eyes as well as lung disease.
<i>Effects of Chronic Exposure:</i>	Overexposure or prolonged inhalation of large amounts of welding fumes with chromium compounds may cause cancer. Other overexposure or prolonged inhalation of large amounts of welding fumes symptoms may include damage to the central nervous system, respiratory system, skin and could affect organs such as pancreas and liver.
<i>Irritancy of Product:</i>	Data not available
<i>Sensitization to Product:</i>	May cause an allergic skin reaction
<i>Carcinogenicity:</i>	Nickel and Chromium, and their compounds, are on the list of <i>International Agency for Research on Cancer</i> as Carcinogenic
<i>Reproductive Effects:</i>	Data not available
<i>Respiratory Sensitization:</i>	Data not available
<i>Toxicological Data:</i>	<u>Calcium carbonate</u> Oral, rat – >2000 mg/kg (LD50) Inhalation, rat – >3 mg/L [4hr] (LC50) <u>Chromium</u> Oral, rat – 19.8 mg/kg (LCD50) <u>Manganese</u> Oral, rat – 9000 mg/kg (LCD50) <u>Nickel</u> Oral, rat – >9000 mg/kg (LD50) Inhalation, rat – >10.2 mg/L [1hr] (LC50) <u>Titanium dioxide</u> Oral, rat – >10000 mg/kg (LD50) Dermal, rabbit – >10000 mg/kg (LD50) <u>Molybdenum</u> Oral, rat – 4461 mg/kg (LD50) Inhalation, rat – 5.1 mg/L [4hr] (LC50) Dermal, rabbit – >2000 mg/kg (LD50) <u>Iron</u> Oral, rat – 30000mg/kg (LCD50)

Section 12: Ecological Information

<i>Aquatic and Terrestrial Toxicity:</i>	Welding rods contain metals which are considered to be very toxic towards aquatic organisms. Finely divided welding rods are therefore considered harmful to aquatic organisms.
<i>Persistence and Degradability:</i>	The welding rods consist of elements that cannot degrade any further in the environment.
<i>Bio accumulative Potential:</i>	Welding rods contain heavy metals which bio accumulates in the food chain. The following figures are the bio concentration factor (BCF) for the substances on their own: Chromium 200 Manganese 59052 Nickel 16 Iron 140000

Soil Mobility:

Welding rods are not soluble in water or soil. Particles formed by working welding rods can be transported in the air.

Section 13: Disposal Considerations

NOTE: Always dispose of waste in accordance with local, provincial and federal regulations.

Safe Handling:

Wash with soap and water after handling discarded material.

Methods of Disposal:

Discard any product, residue, waste or packaging in an environmentally acceptable manner in compliance with federal, State, or local laws. Do not dispose of any waste, remaining product or by-product in the sewer.

Section 14: Transportation Information

This material is non-hazardous and is not considered a dangerous good per transportation regulations.

Section 15: Regulatory Information

U.S. State Right to Know:

Titanium dioxide (New Jersey, Massachusetts, Pennsylvania, Minnesota)
Manganese (New Jersey, Massachusetts, Pennsylvania, Rhode Island, Minnesota)

California Proposition 65:

This product contains (or produces) a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm: Titanium dioxide.

Section 16: Other Information

Preparation Date:

19 January 2107

Date of Last Revision:

19 January 2017

This SDS format is in accordance with GHS. PowerWeld Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Product use and conditions of use are beyond the control of PowerWeld. Warranty of materials is limited to test results of product performance as detailed in certificates of compliance. Interpretation of test results is the responsibility of end-user. No other warranties, expressed or implied, are made.