



SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Identifier: **Nickel Cast Maintenance Electrodes**
Product Use: SMAW / Stick / Arc Welding
Item Code: 140, 144
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
Emergency Phone: CHEMTREC (24-hour) 1-800-424-9300
Prepared By: PowerWeld Inc.
Preparation Date: 12 April 2016

Section 2: Hazard Identification

Classification: Not applicable
Label Elements: Not applicable
Other Hazards: Spatter and melting metal can cause burn injuries and start fires. Arc rays can injure eyes and burn skin. Electric shock can kill. 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 (%)
Calcium Carbonate	1317-65-3	1 - 11
Calcium Fluoride	7789-75-5	1 - 11
Iron Oxide	1317-61-9	1 - 11
Graphite	7782-42-5	1 - 11
Barium Fluoride*	7787-32-8	1 - 11 [140]
Barium Carbonate	513-77-9	1 - 15
Strontium Carbonate*	1633-05-2	5 - 15 [144]
Bentonite*	1302-78-9	1 - 11 [140]
Dolomite	16389-88-1	1 - 11
Iron	7439-89-6	1 - 35
Sodium Silicate	1344-09-8	1 - 11
Manganese*	7439-96-5	1 - 11 [144]
Nickel	7440-02-0	30 - 73

*Ingredient present only in electrode noted under "Approximate Concentration"

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

<i>Ingestion:</i>	breathing is difficult, give oxygen. If not breathing, give artificial respiration and transport to nearest medical facility for additional treatment. 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>	Treat symptomatically; symptoms may be delayed. Show this SDS to the attending physician.

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>	Not flammable; emits toxic fumes when heated
<i>Means of Extinction:</i>	Do not use water on molten metal; large fires may be flooded with water from a distance.
<i>Auto-ignition Temperature:</i>	Not applicable
<i>Hazardous Combustion Products:</i>	Nickel/Nickel oxides, Iron oxides, Calcium oxide, Hydrogen fluoride, Carbon oxides, Barium oxides, Aluminum oxide, Silicon oxides, Sodium oxides, Strontium oxides, Manganese (oxides)
<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>	See Section 8
<i>Emergency Procedures:</i>	This product is in rod form and has no hazards as shipped.
<i>Leak or Spill Procedure:</i>	If spilled, the product may be picked up and placed back into the container. If metals become molten, contain with sand and allow to return back into a solid for recycle as scrap.

Section 7: Handling and Storage

<i>Handling Procedures and Equipment:</i>	Avoid contact with eyes. Avoid breathing dust. Avoid prolonged or repeated contact with skin. Do not get on skin or clothing. Keep container closed. Use
---	--

Storage Requirements:

Incompatibilities:

only with adequate ventilation. Wash thoroughly after handling. Avoid contact of spilled material and runoff with soil and surface waterways.

Store in a cool, dry and low humid location.

Strong acids and bases.

Section 8: Exposure Controls/Personal Protection

Exposure Limits:

HAZARDOUS INGREDIENTS	CAS NUMBER	OSHA PEL (mg/m³)	ACGIH TLV (mg/m³)
Calcium Carbonate	1317-65-3	5	10
Calcium Fluoride	7789-75-5	2.5	2.5
Iron Oxide	1317-61-9	15	10
Graphite	7782-42-5	15(dust)	2
Barium Fluoride*	7787-32-8	0.5(dust), 2.5	0.5(dust), 2.5
Barium Carbonate	513-77-9	0.5	0.5
Strontium Carbonate*	1633-05-2	15	10
Bentonite*	1302-78-9	-	-
Dolomite	16389-88-1	15	10
Iron	7439-89-6	10	5
Sodium Silicate	1344-09-8	-	5
Manganese*	7439-96-5	5	1
Nickel	7440-02-0	1	1

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:

Use proper welding helmet or safety shield, as well as clothing and gloves, as required for job duties. Do not eat or drink while using these products and wash hands thoroughly after use.

Section 9: Physical and Chemical Properties

Physical State:

Solid

Odor and Appearance:

Odorless black or brown/red rods

Odor Threshold (ppm):

Not available

pH:

Not available

Melting Point:

>2300°F (>1300°C)

Freezing Point:

Not available

Boiling Point:

Not available

Flashpoint:

Not available

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

Possible Hazardous Reactions:

Contact with chemical substances (ie./ acids and strong bases) will cause the generation of gas.

Conditions to Avoid:

Not applicable

Materials to Avoid (Incompatibilities):

Reacts with acids

Hazardous Decomposition By-Products: When this product is used in a welding process, hazardous decomposition product would include those from volatilization, reaction or oxidation of the material listed in section 3 and those from the base metal and coating. The amount of fumes generated from this product varies with welding parameters and dimensions. Reasonably expected fume constituents of this product would include fluorides and oxides of metals such as Iron, Manganese, Nickel, Calcium, Sodium and Silicon. Refer to applicable exposure limits for fume compounds, including those exposure limits for fume compounds found in section 3. Manganese and Nickel have low exposure limits, in some countries, which may be easily exceeded. Reasonably expected gaseous products would include Carbon oxides, Nitrogen oxides and Ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quality of fumes and gases produced.

Hazardous Polymerization: Will not occur under normal conditions.

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.

Inhalation: Inhalation is the most likely route of exposure; refer to “Effects of Acute Exposure” and “Effects of Chronic Exposure” below.

Ingestion: Unlikely due to form of product.

Effects of Acute Exposure: 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.

Effects of Chronic Exposure: 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.

Irritancy of Product: Not available

Sensitization to Product: This product is not expected to cause skin sensitization.

Carcinogenicity: Prolonged inhalation of Nickel (Classified 2B by IARC and R by NTP) above safe exposure limits may cause cancer.

Reproductive Effects: Not available

Respiratory Sensitization: Not available

Toxicological Data:

Barium Carbonate
Oral, rat: 418 mg/kg (LD50)
Oral, mosquito fish: 6950 mg/L [96hr] (LC50)

Barium Fluoride
Oral, rat: 250 mg/kg (LD50)
Intraperitoneal, mouse: 29.91 mg/kg (LD50)

Bentonite
Intravenous, rat: 35 mg/kg (LD50)
Intravenous, rainbow trout: 19000 mg/kg (LC50)

Calcium Carbonate
Oral, rat: 2000 mg/kg (LD50)
Inhalation, rat: 3 mg/L [4hr] (LC50)
Dermal, rat: 2000 mg/kg (LD50)

Calcium Fluoride
Oral, rat: 2000 mg/kg (LD50)
Inhalation, rat: 5070 mg/m³ [4hr] (LC50)

Iron

Oral, rat: 30000 mg/kg (LD50)

Iron Oxide

Oral, rat: 10000 mg/kg (LD50)

Manganese

Oral, rat: 9000 mg/kg (LD50)

Nickel

Oral, rat: 9000 mg/kg (LD50)

Inhalation, rat: 10.2 mg/L [1hr] (LC50)

Section 12: Ecological Information

Aquatic and Terrestrial Toxicity:

Welding rods contain metals which are considered to be very toxic towards aquatic organisms.

Persistence and Degradability:

These welding rods consist of elements that cannot degrade any further in the environment.

Bio accumulative Potential:

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:

Manganese, BCF:	59052
Nickel, BCF:	16
Iron, BCF:	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, regional and federal regulations.

Safe Handling:

Gloves can be worn while handling discarded or unwanted product.

Methods of Disposal:

Recycle when possible. Do not allow to enter drains, sewers or watercourses. Discard any unwanted product, residues, containers, or liners in a suitable disposal container in an environmentally acceptable manner, as required by relevant legislation.

Section 14: Transportation Information

This material is not considered as a dangerous good per transportation regulations.

Section 15: Regulatory Information

General Warning:

Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation. Electric shock can kill. Arc rays and sparks can injure eyes and burn skin. Wear correct hand, head, eye and body protection.

California Proposition 65:

This product contains a chemical(s) known to the State of California to cause cancer.

EPCRA/SARA Title III Toxic Chemicals:

The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA reporting. See Section 3 for weight percentage:

Manganese	5 mg/m ³
Nickel	1 mg/m ³

Section 16: Other Information

<i>Preparation Date:</i>	12 April 2016
<i>Date of Last Revision:</i>	12 April 2016

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.