

**Safety
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1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT NAME: 2181, 2181F

MANUFACTURER: Selectrode Industries, Inc.
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Huntington Station, NY 11746 U.S.A.
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EMERGENCY TELEPHONE NUMBER: 631-547-5470

2. HAZARD IDENTIFICATION:

Emergency Overview: This product is normally not considered hazardous as shipped. Avoid eye contact or inhalation of dust from the product. When this product is used in a welding process, the most important hazards are welding fumes and heat.

Classification of the Substance/Mixture

CLP/GHS Classification (1272/2008):

Hazardous to the Aquatic Environment – Acute Hazard, Category 1

EU Classification (67/548/EEC):

Dangerous for Environment (N), R50

Hazardous Classification per 29CFR 1910.1200 (Rev. July 1, 2012):

Hazardous to the Aquatic Environment – Acute Hazard, Category 1

Labelling:

Symbols:

Signal Word: Warning

Hazard Statements:

H400 – Very toxic to aquatic life

Precautionary Statements:

P271 – Use only outdoors or in a well-ventilated area.

P273 – Avoid release to the environment.

P280 – Wear protective gloves/eye protection/face protection.

P391 – Collect spillage.

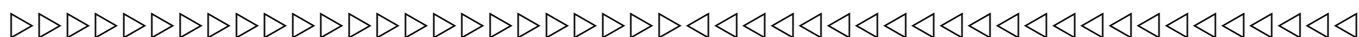
P402 – Store in a dry place.




P501 – Dispose of contents/container in accordance with local/regional/national/international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS:

Chemical Identity	CAS #	Range %	OSHA PEL (mg/m3)	ACGIH-TLV (mg/m3)	Carcinogenicity	EU Classification (67/548/EEC)	CLP/GHS Classification (1272/2008)	Hazardous Classification per 29CFR 1910.1200 (Rev. July, 2012)
#Copper	7440-50-8	80-90	1.0	1.0	No	(F) R11 (N) R50	(H228) Flam. Sol. 1 (H400) Aquatic Acute 1	(H228) Flam. Sol. 1 (H400) Aquatic Acute 1
#Phosphorus	7723-14-0	1-11	.1	.1	No	(F) R11, R16	(H228) Flam. Sol. 1 	(H228) Flam. Sol. 1

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						 (N) R52/53	(H412) Aquatic Chronic 3 	(H412) Aquatic Chronic 3 
#Silver	7440-22-4	1-11	.01	.01	No	Not Dangerous	Not Hazardous	Not Hazardous

Important This section covers the materials of which the products manufactured. The fumes and gases produced during normal use of this product are covered in section 10. The term "Hazardous" in "Hazardous Material" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 29CFR 1910-1200 and it does not necessarily imply the existence of hazard. The chemicals or compounds reportable by Section 313 of SARA are marked by the symbol #.

4. FIRST AID MEASURES:

Inhalation: Remove to fresh air immediately or administer oxygen. Get medical attention immediately.

Skin: Flush skin with large amounts of water. If irritation develops and persists, get medical attention.

Eye: Flush eyes with water for at least 15 minutes. Get medical attention.

Ingestion: Obtain medical attention immediately if ingested. Rinse mouth.

5. FIRE-FIGHTING MEASURES:

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use the extinguishing media recommended for the burning material and fire situation.

Unsuitable Extinguishing Media: Do not use water on molten metal. Large fires may be flooded with water from a distance.

Specific Hazards Arising From Chemical: Oxides of Phosphorus. Copper Oxides, Silver/silver oxides

Protective Equipment: Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES:

Personal Precautions: Refer to section 8.

Environment Precautions: Refer to section 13.

Cleaning Measures: Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.

7. HANDLING AND STORAGE:

Precautions for Safe Handling: Handle with care. Wear gloves when handling product. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.

Conditions for Safe Storage: Avoid accumulations of dust. Good housekeeping practices are essential to mitigate/prevent risk of secondary explosions. Store the product in a tightly closed container. Isolate from incompatible materials. Protect containers from physical damage.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION:

Engineering Controls: Avoid exposure to welding fumes, spatter, heated materials and dust. Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Keep work place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.

Exposure limits: Use industrial hygiene equipment to ensure that exposure does not exceed applicable national exposure limits. The limits defined under section 3 can be used as guidance. Unless noted, all values are for 8 hour time weighted average. For information about welding fume analysis refer to section 10.

Biological limits: No available data

Personal protection:

Respiratory protection: Use an air purifying dust respirator when welding or brazing in a confined space, or when local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

Hands protection: Wear appropriate gloves to prevent skin contact.

EN 12477: Protection gloves for welders

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Requirements (EN Levels)	Type A	Type B
Abrasion (Cycles)	2 (500)	1 (100)
Cut (Factor)	1 (1.2)	1 (1.2)
Tear (Newton)	2 (25)	1 (10)
Puncture (Newton)	2 (60)	1 (20)
Burning Behaviour	3	2
Contact Heat	1	1
Convective Heat	2	-
Small Splashes	3	2
Dexterity	1 (11)	4 (6.5)

Type B gloves are recommended when high dexterity is required as for TIG welding, while type A gloves are recommended for other welding processes. The contact temp (°C) is 100 and the threshold time (seconds) >15.

Eyes protection: Welder’s helmet or face shield with colour absorbing lenses. Shield and filter to provide protection from harmful UV radiation, infra red and molten metal approved to standard EN379. Filter shade to be a minimum of shade 9.

Skin protection: Heat-resistant protective clothing. Wear safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Clothing should be selected to suit the level, duration and purpose of the welding activity.

Class 1	
Impact of Spatter	15 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 7 seconds
Process	<p>Manual welding with light formation of spatter and drops</p> <ul style="list-style-type: none"> • Gas Welding • TIG Welding • MIG Welding • Micro plasma welding • Brazing • Spot Welding • MMA Welding (with rutile-covered electrode)
Environmental Conditions	<p>Operation of machines</p> <ul style="list-style-type: none"> • Oxygen cutting machines • Plasma cutting machines • Resistance welding machines • Machines for thermal spraying • Bench welding

Class 2	
Impact of Spatter	25 Drops
Heat Transfer (radiation)	RHTI 24 ≥ 16 seconds
Process	<p>Manual welding with heavy formation of spatter and drops</p> <ul style="list-style-type: none"> • MMA welding (with basic or cellulose-covered electrodes) • MAG welding (with CO2 or mixed gases) • MIG Welding (with high current) • Self shielded flux core arc welding • Plasma cutting • Gouging • Oxygen cutting • Thermal spraying

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<p>Environmental Conditions</p>	<p>Operation of machines</p> <ul style="list-style-type: none"> • In confined spaces • At overhead welding/cutting or in comparable constrained positions
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9. PHYSICAL AND CHEMICAL PROPERTIES:

- Appearance:** Solid.
- Color:** None
- Odour:** Odourless
- Odour Threshold:** Not Available
- pH Value:** Not Available
- Melting Point/Melting Range:** 1355° F, 735° C
- Freezing Point:** Not Available
- Boiling Point/Boiling Range:** Not Available
- Flash point:** Not Available
- Evaporation Rate:** Not Available
- Self-in flammability:** Not Available
- Explosion limits:** Not Available
- Vapour pressure:** Not Available
- Vapour density:** Not Available
- Density at 20°C:** Not Available
- Relative density:** 7.6 g/cm³
- Solubility:** Insoluble in water.
- Partition coefficient:** Not Available
- Auto-ignition temperature:** Not Available
- Decomposition temperature:** Not Available
- Other Information:** No available data.

10. STABILITY AND REACTIVITY:

- Chemical Stability:** This product is stable under normal conditions.
- Hazardous Reactions:** Contact with chemical substances like acids or strong bases cause generation of gas. Keep away from any possible contact with water, because of violent reaction and possible flash fire.
- Conditions to Avoid:** Not applicable.
- Incompatible Materials:** Reacts with acid and water
- Hazardous Decomposition 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. Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in section 3. 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.

11. TOXICOLOGICAL INFORMATION:

- Signs and Symptoms of Overexposure:** Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contaminants and processes. The Internal Agency for Research on Cancer has classified welding fumes as possible carcinogenic to humans (Group 2B).
- Acute Effects:** Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Symptoms of systematic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis and coma. The red form of Phosphorus is stable and relatively non-toxic at room temperature. When heated in the

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presence of air, it is converted to phosphorus pentoxide, which is corrosive and irritating to the eyes, nose, throat and mucous membranes. May cause sensitisation by skin contact.

LD/LC50 Values that are relevant for classification		
Copper 7440-50-8		
Oral	LD50	>2000 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rat)
Inhalation	LC50	>5.11 mg/L/4 hr (rat)
Intraperitoneal	LD50	3.5 mg/kg (mouse)

LD/LC50 Values that are relevant for classification		
Phosphorus 7723-14-0		
Oral	LD50	15000 mg/kg (rat)
	LC50	.005 mg/l (96h) (Bluegill)

LD/LC50 Values that are relevant for classification		
Silver 7440-22-4		
Oral	LD50	>5000 mg/kg (rat)

Chronic Effects: Overexposure to welding fumes may affect pulmonary function. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defect and copper deposition in the cornea as exemplified by humans with Wilson’s disease. It has also been reported that copper poisoning has led to haemolytic anemia and accelerates arteriosclerosis, damage to the lungs, vomiting, diarrhoea, abdominal pain and blood disorders.

12. ECOLOGICAL INFORMATION:

Toxicity: No available data.

Persistence and Degradability: No available data.

Bio accumulative Potential: The following figures are the bio concentration factor (BCF) for the substances on their own.
BCF:

Copper, BCF: 29

Mobility in Soil: No available data.

Other Adverse Effects: No available data.

Welding materials could degrade into components originating from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS:

Product: For product elimination, consult recycling companies or appropriate local authority.

Package: May be disposed in approved landfills provided local regulations are observed.

14. TRANSPORT INFORMATION:

UN-number: Welding rods are not classified as dangerous goods for transport and has no UN number.

UN proper shipping name: Welding rods are not classified as dangerous goods for transport and has no UN proper shipping name.

Transport hazard class: Welding rods are not classified as dangerous goods for transport.

Packing group: There are not any special precautions with which a user should or must comply or be aware of in connection with transport or conveyance either within or outside premises.

Environmental hazards: Welding rods are not environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID and AND) and/or a marine pollutant to the IMDG Code.

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Special precautions for users: There are not any special precautions which a user should or must comply or be aware of in connection with transport or conveyance either within or outside premises of the welding rod.

Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code: Welding rods in massive form do not subject under MARPOL 73/78 and the IBC Code. Not applicable – product is transported only in packaged form.

15. REGULATORY INFORMATION:

Safety, health and environment regulations/legislation specific for the substance or mixture: Read and understand the manufacturer’s instructions, your employer’s safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

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.

Chemical safety assessment: No

USA: Under the OSHA Hazard Communication Standard, this product is considered hazardous.

CALIFORNIA PROPOSITION 65: No compounds present. (California Health & Safety Code § 25249.5 et seq.)

United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.

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.

Ingredient Name	Disclosure Threshold
Copper	1 mg/m3
Phosphorus	.1 mg/m3
Silver	.01 mg/m3

16. OTHER INFORMATION:

The information in this document is believed to be correct as of the date issued. However, no warranty is expressed to be implied regarding the accuracy or completeness of this information. This information and product are furnished on the condition that the person receiving them shall make his own determinations as to the suitability of the product for his particular purpose and on the condition that he assumes the risk of his use thereof.

This Material Safety Data Sheet complies with the EC directives 91/155/EEC and 93/112/EEC, including modifications 2001/58/EC.

Complies with OSHA Communication Standard 29 CFR 1910.1200 and Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499

Hazard Statements:

H228 – Flammable solid

H400 – Very toxic to aquatic life

H412 – Harmful to aquatic life with long lasting effects.

R-Phrases:

R11 – Highly flammable

R16 – Explosive when mixed with oxidizing substances.

R50 – Very toxic to aquatic organisms

R52/53 – Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-Phrases:

S7 – Keep containers tightly closed.

S16 – Keep away from source of ignition – No smoking.

S43 – In case of fire, use fire-fighting equipment on basis class D.

S61 – Avoid release to the environment.

End of the document.