



**Welding Products**

Division of The BOC Group, Inc.

4437 E. 49th Street  
 Cleveland  
 Ohio 44125  
 Telephone: 216-641-8790  
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**MATERIAL SAFETY  
 DATA SHEET**

Welding Consumables and  
 Related Products  
 Conforms to OSHA 1910.1200

**IDENTIFICATION**

Trade Name: Pipe-Craft Electrodes Date: 12/2/85  
 Product Type: AWS A5.1, E6010 Stock Nos: 1318-3423 thru 3428  
 QQ-E-450a, Type 6010 1315-3423 thru 3426

**HAZARDOUS INGREDIENTS**

This section lists the ingredients (>0.01%) from which this product is manufactured which are defined as hazardous materials according to OSHA Hazardous Communication Standard (29CFR1910.1200). The fumes and gases produced during normal welding with this product are covered in the Reactivity Data Section.

Ingredient	CAS	PEL (OSHA)	TLV (ACGIH)
Cellulose	9004-34-6	None	10 MG/M <sup>3</sup>
Silicon	7440-21-3	10 MG/M <sup>3</sup>	10 MG/M <sup>3</sup>
Iron	7439-89-6	5 MG/M <sup>3</sup>	5 MG/M <sup>3</sup>
Manganese	7439-96-5	5 MG/M <sup>3</sup>	1 MG/M <sup>3</sup>
Titanium Dioxide	13463-67-7	15 MG/M <sup>3</sup>	10 MG/M <sup>3</sup>
Potassium Titanate	---	None	None
Sodium	1344-09-8	None	None

**PHYSICAL/CHEMICAL CHARACTERISTICS**

Flux coating on a solid metal core wire in cut lengths.

**FIRE/EXPLOSION HAZARDS**

Nonflammable. Welding arc and sparks can ignite combustibles and flammable products. Reference: ANSI - Z49.1, NFPA-518

REACTIVITY DATA

Hazardous Decomposition Products

The composition of fumes and gases depends upon the metal being welded, coatings on the metal, air contaminants from cleaning and degreasing solvents, as well as ingredients of the electrodes.

The quantity of fumes of which the welder is exposed depends upon the welding process, number of welders in the work area, volume of the area, amount of ventilation and whether the welder keeps his head out of the fume plume.

Listed are fume and gas products which may reasonably be expected when the electrode is consumed in normal operation. Included are those originating from the oxidation, volatilization and reaction of the ingredients listed in the Hazardous Ingredients Section, plus those from the base metal and coatings.

FUME/GASES	CAS	PEL (OSHA)	TLV (ACGIH)
Silicon Oxide	7631-86-9	5 MG/M <sup>3</sup>	3 MG/M <sup>3</sup>
Iron Oxide	1309-38-2	5 MG/M <sup>3</sup>	10 MG/M <sup>3</sup>
Manganese	7439-96-5	5 MG/M <sup>3</sup>	1 MG/M <sup>3</sup>
Titanium Dioxide	13463-67-7	15 MG/M <sup>3</sup>	10 MG/M <sup>3</sup>
Ozone	10028-15-6	0.2 MG/M <sup>3</sup>	100 P.P.B.
Carbon Dioxide	124-38-9	5000 P.P.M.	5000 P.P.M.
Carbon Monoxide	630-08-0	50 P.P.M.	50 P.P.M.

HEALTH HAZARD DATA

The ACGIH recommended TLV for welding fume NOC (Not Otherwise Classified) is 5 MG/M<sup>3</sup>. See Reactivity Data for specific fume constituents which may modify this PEL/TLV.

Acute Overexposure: To welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of the nose, throat or eyes. In confined areas, may lead to unconsciousness and death.

Chronic Overexposure: To welding fumes may lead to siderosis, and is believed by some investigators to reduce pulmonary function.

Arc Rays: Produce infrared and ultraviolet light which may result in welder's flash which appear within 4 to 12 hours after exposure. Contact with the Arc can cause 2nd and 3rd degree burns to the skin.

Electricution: Contact with electrical welding equipment can kill.

Emergency/First Aid Procedures: Provide oxygen if breathing is difficult. If not breathing, give artificial respiration and get medical help. Treat skin areas exposed to Arc and burns. Obtain medical aid for all overexposures and eye injuries.

Carcinogenicity

OSHA

NTP

IARC MONOGRAPHS

Product does not contain ingredients that are defined as carcinogenic per 29CFR1910.1200

SAFE HANDLING/CONTROL MEASURES

Air Sampling: To determine the composition and quantity of fume and gases to which workers are exposed, is to take air samples inside the welder's helmet, or breathing zone. Reference: ANSI/AWS - F1.1.

Ventilation: Use general ventilation, local exhaust at the arc, or both, to keep fumes and gases below the PEL/TLV in the worker's breathing zone and general area. Train the worker to keep his head out of the fume plume.

Respiratory Protection: Use NIOSH approved fume respirator, or air supplied respirator, when welding in confined spaces or where ventilation does not keep fume exposures below PEL/TLV.

Eye Protection: Wear goggles and welding helmet, with the correct shade of filter lens. As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles to shield others.

Protective Clothing: As a minimum, wear leather gloves, arm and shoulder protectors, apron, face shield and hard hats. Reference: ANSI - Z49.1

Cleanup of Spills: Not Applicable.

Waste Disposal: discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with local, state, and federal regulations.



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# MATERIAL SAFETY DATA SHEET

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## IDENTIFICATION

Code-Arc 7018 MR Electrodes  
 Trade Name: Easy-Arc 7018 MR Electrodes Date: 12/2/85  
 Product Type: AWS A5.1, E7018 Stock Nos: 1318-7183 thru 7188  
 MIL-E-22200/1, MIL-7018 1318-2833 thru 2838  
 1315-7133, 7184 thru 7188

## HAZARDOUS INGREDIENTS

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Ingredient	CAS	PEL (OSHA)	TLV (ACGIH)
Iron	7439-89-6	5 MG/M <sup>3</sup>	5 MG/M <sup>3</sup>
Titanium Dioxide	13463-67-7	15 MG/M <sup>3</sup>	10 MG/M <sup>3</sup>
Silicon	7440-21-3	10 MG/M <sup>3</sup>	10 MG/M <sup>3</sup>
Manganese	7439-96-5	5 MG/M <sup>3</sup>	1 MG/M <sup>3</sup>
Sodium	1344 09-8	None	None
Calcium Fluoride	7789-75-5	2.5 MG/M <sup>3</sup>	2.5 MG/M <sup>3</sup>
Potassium Titanate	---	None	None

## PHYSICAL/CHEMICAL CHARACTERISTICS

Flux coating on a solid metal core wire in cut lengths.

## FIRE/EXPLOSION HAZARDS

Nonflammable. Welding arc and sparks can ignite combustibles and flammable products. Reference: ANSI - Z49.1, NFPA-51B

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 REACTIVITY DATA
 

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Hazardous Decomposition Products

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Listed are fume and gas products which may reasonably be expected when the electrode is consumed in normal operation. Included are those originating from the oxidation, volatilization and reaction of the ingredients listed in the Hazardous Ingredients Section, plus those from the base metal and coatings.

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Manganese	7439-96-5	5 MG/M <sup>3</sup>	1 MG/M <sup>3</sup>
Fluorides	---	2.5 MG/M <sup>3</sup>	2.5 MG/M <sup>3</sup>
Ozone	10028-15-6	0.2 MG/M <sup>3</sup>	100 P.P.M.
Carbon Dioxide	124-38-9	5000 P.P.M.	5000 P.P.M.
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 HEALTH HAZARD DATA
 

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Electricution: Contact with electrical welding equipment can kill.

Emergency/First Aid Procedures: Provide oxygen if breathing is difficult. If not breathing, give artificial respiration and get medical help. Treat skin areas exposed to Arc and burns. Obtain medical aid for all overexposures and eye injuries.

Products do not contain any...  
29CFR1910.1200

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SAFE HANDLING/CONTROL MEASURES

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**Air Sampling:** To determine the composition and quantity of fume and gases to which workers are exposed, is to take air samples inside the welder's helmet, or breathing zone. Reference: ANSI/AWS - F1.1.

**Ventilation:** Use general ventilation, local exhaust at the arc, or both, to keep fumes and gases below the PEL/TLV in the worker's breathing zone and general area. Train the worker to keep his head out of the fume plume.

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**Protective Clothing:** As a minimum, wear leather gloves, arm and shoulder protectors, apron, face shield and hard hats.  
Reference: ANSI - Z49.1

**Cleanup of Spills:** Not Applicable.

**Waste Disposal:** discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with local, state, and federal regulations.