



Iron Based Hardfacing Electrodes

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: Iron Based Hardfacing Electrodes
Common Name: 320, 325, 331, 333, 334, 335, 349, 350, 353, 354, 356, 357, 358, 359, 361, 362, 394, 997, 9768, 690, 1309, 9239, 9454, 9225, 9458, 9459, 9765
SDS Number: 13
Revision Date: 5/5/2015
Version: 2
Product Use: Welding
Supplier Details: WELD MOLD COMPANY
750 Rickett Road
Brighton, MI 48116

Emergency: 810-229-9521
Contact: Kelley Henrikson
Phone: 810-229-9521
Fax: 810-229-9580
Email: khenrikson@weldmold.com
Web: www.weldmold.com

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

- Health, Skin corrosion/irritation, 1
- Health, Specific target organ toxicity - Single exposure, 3
- Health, Carcinogenicity, 1
- Health, Specific target organ toxicity - Repeated exposure, 2

GHS Label elements, including precautionary statements

GHS Signal Word: DANGER

GHS Hazard Pictograms:



GHS Hazard Statements:

- H314 - Causes severe skin burns and eye damage
- H335 - May cause respiratory irritation
- H350 - May cause cancer
- H373 - May cause damage to organs through prolonged or repeated exposure
- CGA-HG11 - SYMPTOMS MAY BE DELAYED.

GHS Precautionary Statements:

- P232 - Protect from moisture.
- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- CGA-PG27 - Read and follow the Safety Data Sheet (SOS) before use.

Hazards not otherwise classified (HNOC) or not covered by GHS

Route of Entry: Eyes; Skin
Target Organs: Throat; Nose, Respiratory system

Inhalation: Short term overexposure to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of the nose, throat, lungs, and/or eyes.
ACCUTE EFFECTS: Irritating to the nose, throat and respiratory tract.
SUBCHRONIC/CHRONIC TOXICITY
CHRONIC: Chronic overexposure to welding fumes can result in: Chronic respiratory problems, iron build-up in the lungs, bone erosion, reduced pulmonary functions and nervous disorders.

Skin Contact: The bright light produced by the arc can burn skin and eyes

Eye Contact: Fumes may be moderately irritating to the eyes

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
7440-44-0	0.6-5.2%	Carbon
7439-96-5	0.25-16%	Manganese compounds and fumes (as Mn)
7440-21-3	0.5-1.75%	Silicon
7440-47-3	3-34%	Chromium
7440-02-0	3-6.5%	Nickel, metallic and alloys
7439-98-7	.7-8.25%	Molybdenum: soluble and insoluble compounds
7440-33-7	1.5-4%	Tungsten
7440-48-4	1.25-1.75%	Cobalt, metal, dust and fume (as Co)
7440-42-8	0-0.3%	Boron
7429-90-5	0-15%	Aluminum
7440-50-8	1.75-2.25%	Copper
7439-89-6	57-85%	Iron
13463-67-7	6-20%	Titanium dioxide
7789-75-5	2-6%	Calcium fluoride (CaF2)
9004-34-6	1-6%	Cellulose
1317-65-3	5-15%	Calcium carbonate
1344-09-8	2-8%	Silicic acid, sodium salt
1312-76-1	5-10%	Silicic acid, potassium salt
1314-62-1	0-2%	Vanadium
7440-32-6	0-1.75%	Titanium

EXPOSURE LIMITS

<u>CHEMICAL NAME</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Carbon	15 mg/m3 * = Total dust, > = Respirable fraction	10 mg/m3 Total Dust
Manganese compounds	5 mg/m3	1 mg/m3
Silicon	10 mg/m3	10 mg/m3
Chromium	1 mg/m3	0.5 mg/m3
Nickel Metal	1 mg/m3	1.5 mg/m3
Soluble compounds, as Mo	15 mg/m3	10 mg/m3
Tungsten	5 mg/m3 TWA, 10mg/m3 STEL	5 mg/m3 TWA, 10 mg/m3 STEL (inhalable)
Cobalt	.01 mg/m3 TWA	.02 mg/m3 TWA
Boron	15 mg/m3 * NL = Not Listed	10 mg/m3
Aluminum	15 mg/m3	10 mg/m3 NL
Copper	1 mg/m3	1 mg/m3
Iron	10 mg/m3 TWA (Total Dust)	10 mg/m3 TWA (particles)
Titanium dioxide	10 mg/m3 NL = Not Listed	10 mg/m3
Calcium Fluoride	2.5 mg/m3 As F	2.5 mg/m3
Cellulose	10 mg/m3	10 mg/m3
Calcium Carbonate	15 mg/m3	10 mg/m3

Silic acid, sodium salt	NL	NL
Silic acid, potassium salt	NL	NL
Vanadium	0.05 mg/m3 TWA	1 mg/m3 TWA
Titanium	10 mg/m3	10 mg/m3

4 FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention. Non-irritating.

5 FIRE FIGHTING MEASURES

Welding consumables are not flammable, however the welding arc and sparks will ignite other combustible materials. Do not weld in the presence of combustible materials.

6 ACCIDENTAL RELEASE MEASURES

GENERAL PROCEDURES: Prevent waste from contaminating the surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations.

7 HANDLING AND STORAGE

Storage Requirements: Store in a dry area.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTION

EYES AND FACE: S39 - Wear eye/face protection

RESPIRATORY: Use sufficient ventilation, local exhaust at the arc, or both to keep the fumes and gases below TLV's in the workers breathing zone. In confined spaces use respirable fume respirator or air-supplied respirator.

PROTECTIVE CLOTHING: The intensity of the arc and the sparks emitted from it can cause severe burns. All skin should be covered

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State: The welding consumable discussed herein is composed of a wire strip or solid wire rod with or without a flux based core or outer coating.

10 STABILITY AND REACTIVITY

Hazardous Decomposition: The composition and quantity of welding fumes generated are dependent upon several variables including the base material, base material contaminants and/or coatings (paint, galvanized, etc.) welding process utilized. Other factors that will effect the quantity of fumes available for inhalation are the number of welding operators in a designated work area, the quality of ventilation, the position of the operator with respect to the fume plume, as well as the presence of contaminants in the atmosphere from other manufacturing operations. Reasonably expected fume constituents of this product would include: complex oxides of iron, manganese, silicon, chromium, nickel, molybdenum, calcium, magnesium, and titanium.

COMMENTS: No hazard exists until this product is used in welding.

REPRODUCTIVE TOXIN: Not known
MUTAGENICITY: Not known

ENVIRONMENTAL DATA: No data available

Dispose of in accordance with federal, state and local regulations.

SPECIAL SHIPPING NOTES: Special shipping considerations for this product are limited to those necessary to prevent damaging the product.

Component (CAS#) [%] - CODES

Carbon (7440-44-0) [0.6-5.2%] TSCA

Manganese compounds and fumes (as Mn) (7439-96-5) [0.25-16%] MASS, NJHS, OSHAWAC, PA, SARA313, TSCA, TXAIR

Silicon (7440-21-3) [0.5-1.75%] MASS, OSHAWAC, PA, TSCA, TXAIR

RQ(5000LBS), Chromium (7440-47-3) [3-34%] CERCLA, EPCRAWPC, HWRCRA, MASS, NJHS, NRC, OSHAWAC, PA, PRIPOL, SARA313, TOXICPOL, TSCA, TXAIR

RQ(100LBS), Nickel, metallic and alloys (7440-02-0) [3-6.5%] CERCLA, EPCRAWPC, MASS, NJHS, NRC, OSHAWAC, PA, PRIPOL, SARA313, TOXICPOL, TSCA

Molybdenum: soluble and insoluble compounds (7439-98-7) [.7-8.25%] MASS, OSHAWAC, PA, TSCA, TXAIR

Tungsten (7440-33-7) [1.5-4%] MASS, OSHAWAC, PA, TSCA, TXAIR

Cobalt, metal, dust and fume (as Co) (7440-48-4) [1.25-1.75%] MASS, NJHS, OSHAWAC, PA, PROP65, SARA313, TSCA, TXAIR

Aluminum (7429-90-5) [0-15%] EPCRAWPC, MASS, NJHS, OSHAWAC, PA, SARA313, TSCA, TXAIR

RQ(5000LBS), Copper (7440-50-8) [1.75-2.25%] CERCLA, EPCRAWPC, MASS, NJHS, OSHAWAC, PA, PRIPOL, SARA313, TOXICPOL, TSCA, TXAIR

Iron (7439-89-6) [57-85%] TSCA

Titanium dioxide (13463-67-7) [6-20%] MASS, OSHAWAC, PA, TSCA, TXAIR

Calcium fluoride (CaF₂) (7789-75-5) [2-6%] TSCA

Cellulose (9004-34-6) [1-6%] MASS, OSHAWAC, PA, TSCA, TXAIR

Calcium carbonate (1317-65-3) [5-15%] MASS, OSHAWAC, PA, TSCA, TXAIR

Silicic acid, sodium salt (1344-09-8) [2-8%] TSCA

Silicic acid, potassium salt (1312-76-1) [5-10%] TSCA

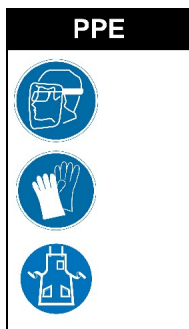
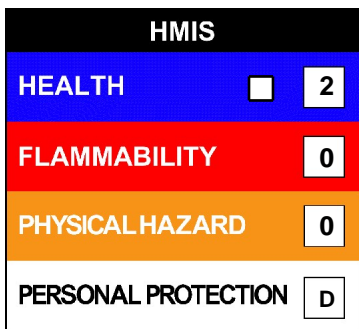
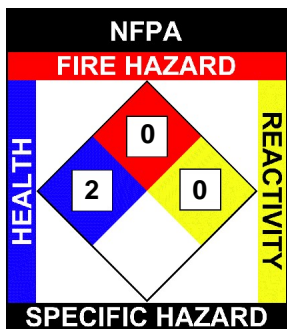
Titanium (7440-32-6) [0-1.75%] TSCA

Regulatory CODE Descriptions

- RQ = Reportable Quantity
- TSCA = Toxic Substances Control Act
- MASS = MA Massachusetts Hazardous Substances List
- NJHS = NJ Right-to-Know Hazardous Substances
- OSHA = OSHA workplace Air Contaminants
- PA = PA Right-To-Know List of Hazardous Substances
- SARA313 = SARA 313 Title III Toxic Chemicals
- TXAIR = TX Air Contaminants with Health Effects Screening Level
- CERCLA = Superfund clean up substance
- EPCRAWPC = EPCRA Water Priority Chemicals
- HWCRA = RCRA Hazardous Wastes
- NRC = Nationally Recognized Carcinogens
- PRIPOL = Clean Water Act Priority Pollutants
- TOXICPOL = Clean Water Act Toxic Pollutants
- PROP65 = CA Prop 65
- ACUTERCRA = RCRA Acute Hazardous Wastes (P-List)
- CSWHS = Clean Water Act Hazardous substances
- EHS302 = Extremely Hazardous Substance
- TXHWL = TX Hazardous Waste List

16 OTHER INFORMATION

NFPA: Health = 2, Fire = 0, Reactivity = 0, Specific Hazard = n/a
HMIS III: Health = 2, Fire = 0, Physical Hazard = 0
HMIS PPE: D - Face Shield and Eye Protection, Gloves, Apron



REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
313 REPORTABLE INGREDIENTS: This product contains some or all of the following reportable ingredients; Copper, Chromium, Manganese and Nickel
TSCA (TOXIC SUBSTANCE CONTROL ACT)
"WARNING": This product contains the following chemical(s) known to the state of California to cause cancer: Nickel (metallic) CAS# 7440-02-0