



Iron Based Hardfacing Flux Cored Wires

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: Iron Based Hardfacing Flux Cored Wires
Common Name: 320, 325, 329, 334, 335, 351, 353, 356, 361, 362, 1309, 9239, 3286, 9454, 9458, 9461, 9462, 9768
SDS Number: 12
Revision Date: 5/29/2015
Version: 2
Product Use: Welding
Supplier Details: WELD MOLD COMPANY
750 Rickett Road
Brighton, MI 48116

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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
7439-96-5	0.25-10%	Manganese Compounds
7440-21-3	.025-3%	Silicon
7440-47-3	3-34%	Chromium
7440-02-0	3-9%	Nickel Metal
7439-98-7	0.3-8.25%	Soluble compounds, as Mo
7440-33-7	0-4%	Tungsten Metal Powder
7440-42-8	0-0.3%	Boron
7429-90-5	0-0.5%	Aluminum
7439-89-6	35-95%	Iron
13463-67-7	0-10%	Titanium dioxide
7789-75-5	0-2%	Fluoride
1317-65-3	0-5%	Calcium carbonate (limestone)
1344-09-8	0-3%	Sodium Polysilicate
7782-42-5	0.6-5.2%	Carbon aka Graphite
7440-67-7	0-8%	Zirconium
7440-62-2	0-18%	Vanadium
7440-03-1	0-4%	Niobium

EXPOSURE LIMITS

<u>CHEMICAL NAME</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Manganese compounds	5 mg/m3	1 mg/m3
Silicon	10 mg/m3* = Total dust, <=Respirable fraction	10 mg/m3 Total Dust
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)
Boron	15 mg/m3 * NL = Not Listed	10 mg/m3
Aluminum	15 mg/m3	10 mg/m3 NL
Iron	10 mg/m3 TWA (Total Dust)	10 mg/m3 TWA (particles)
Titanium dioxide	10 mg/m3 NL = Not Listed	10 mg/m3
Fluoride	2.5 mg/m3 As F	2.5 mg/m3
Calcium Carbonate	15 mg/m3	10 mg/m3
Sodium Silicate	NL * NL = Not Listed	NL
Carbon aka Graphite	15 mg/m3 TWA	10 mg/m3
Zirconium	5 mg/m3	10 mg/m3
Vanadium	0.05 mg/m3 TWA	1 mg/m3 TWA
Niobium	NL	NL

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.

11 TOXICOLOGICAL INFORMATION

REPRODUCTIVE TOXIN: Not known

MUTAGENICITY: Not known

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ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: No data available

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DISPOSAL CONSIDERATIONS

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

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TRANSPORT INFORMATION

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

Component (CAS#) [%] - CODES

Manganese Compounds (7439-96-5) [0.25-10%] MASS, NJHS, OSHAWAC, PA, SARA313, TSCA, TXAIR

Silicon (7440-21-3) [0.025-3%] 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 Metal (7440-02-0) [3-9%] CERCLA, EPCRAWPC, MASS, NJHS, NRC, OSHAWAC, PA, PRIPOL, SARA313, TOXICPOL, TSCA

Soluble compounds, as Mo (7439-98-7) [0.3-8.25%] MASS, OSHAWAC, PA, TSCA, TXAIR

Tungsten Metal Powder (7440-33-7) [0-4%] MASS, OSHAWAC, PA, TSCA, TXAIR

Iron (7439-89-6) [35-95%] TSCA

Titanium dioxide (13463-67-7) [0-10%] MASS, OSHAWAC, PA, TSCA, TXAIR

Fluoride (7789-75-5) [0-2%] TSCA

Calcium carbonate (limestone) (1317-65-3) [0-5%] MASS, OSHAWAC, PA, TSCA, TXAIR

Sodium Polysilicate (1344-09-8) [0-3%] TSCA

Carbon aka Graphite (7782-42-5) [0.6-5.2%] MASS, OSHAWAC, PA, TSCA, TXAIR

Zirconium (7440-67-7) [0-8%] MASS, OSHAWAC, PA, TSCA, TXAIR

Vanadium (7440-62-2) [0-18%] EPCRAWPC, MASS, NJHS, PA, SARA313, TSCA

Niobium (7440-03-1) [0-4%] TSCA

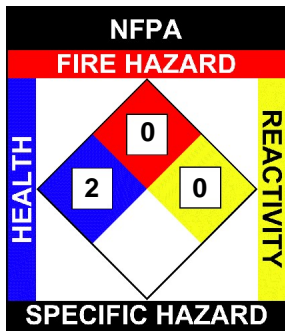
Regulatory CODE Descriptions

RQ = Reportable Quantity
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
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level
CERCLA = Superfund clean up substance
EPCRAWPC = EPCRA Water Priority Chemicals
HWRCRA = RCRA Hazardous Wastes
NRC = Nationally Recognized Carcinogens
PRIPOL = Clean Water Act Priority Pollutants
TOXICPOL = Clean Water Act Toxic Pollutants

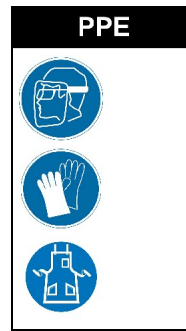
NFPA: Health = 2, Fire = 0, Reactivity = 0, Specific Hazard = n/a

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0

HMIS PPE: D - Face Shield and Eye Protection, Gloves, Apron



HMIS	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	D



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