

# Safety Data Sheet



**DONCASTERS**

## Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

### 1.1 Product identifier

- Product Name** • Carbon Steel Welding Stud  
**Synonyms** • Steel

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified use(s)** • Stud for use in stud welder

### 1.3 Details of the supplier of the safety data sheet

- Manufacturer** • Nelson Stud Weld & Doncasters Company  
7900 West Ridge Road  
PO Box 4019 Elyria, OH 44036  
United States  
www.Doncasters.com  
**Telephone (General)** • 440-329-0400

### 1.4 Emergency telephone number

- Manufacturer** • 800-262-8200 - CHEMTREC

## Section 2: Hazards Identification

### EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]

### 2.1 Classification of the substance or mixture

- CLP** • Specific Target Organ Toxicity Repeated Exposure 2 - H373

### 2.2 Label Elements

**CLP**

#### WARNING



- Hazard statements** • H373 - May cause damage to organs through prolonged or repeated exposure.

#### Precautionary statements

- Prevention** • P260 - Do not breathe dust or fume.  
**Response** • P314 - Get medical advice/attention if you feel unwell.

- Storage/Disposal** • P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

## 2.3 Other Hazards

### CLP

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

## UN GHS

According to: UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

### 2.1 Classification of the substance or mixture

#### UN GHS

- Reproductive Toxicity 2  
Specific Target Organ Toxicity Repeated Exposure 1

### 2.2 Label elements

#### UN GHS

### DANGER



- Hazard statements** • Suspected of damaging fertility or the unborn child.  
Causes damage to organs through prolonged or repeated exposure.

#### Precautionary statements

- Prevention** • Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe dust or fume.  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use personal protective equipment as required.

- Response** • IF exposed or concerned: Get medical advice/attention.  
Get medical advice/attention if you feel unwell.

- Storage/Disposal** • Store locked up.  
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

## 2.3 Other hazards

### UN GHS

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. According to the Globally Harmonized System for Classification and Labeling (GHS) this product is considered hazardous.

## United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

### 2.1 Classification of the substance or mixture

#### OSHA HCS 2012

- Reproductive Toxicity 2  
Specific Target Organ Toxicity Repeated Exposure 1  
Hazards Not Otherwise Classified - Health Hazards - Metal fume fever

### 2.2 Label elements

#### OSHA HCS 2012

### DANGER



- Hazard statements** • Suspected of damaging fertility or the unborn child.  
Causes damage to organs through prolonged or repeated exposure.

### Precautionary statements

- Prevention** • Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe dust or fume.  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves/protective clothing/eye protection/face protection.

- Response** • IF exposed or concerned: Get medical advice/attention.  
Get medical advice/attention if you feel unwell.

- Storage/Disposal** • Store locked up.  
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

## 2.3 Other hazards

### OSHA HCS 2012

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

## Section 3 - Composition/Information on Ingredients

### 3.1 Substances

- Material does not meet the criteria of a substance.

### 3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Iron	CAS:7439-89-6 EC Number:231-096-4	95% TO 99%	Ingestion/Oral-Rat LD50 • 750 mg/kg	<b>UN GHS:</b> Acute Tox. 4 (Orl); Aquatic Chronic 4 <b>EU CLP:</b> Acute Tox. 4, H302; Aquatic Chronic 4, H413 <b>OSHA HCS 2012:</b> Acute Tox. 4 (Orl)	NDA
Manganese	CAS:7439-96-5 EC Number:231-105-1	0% TO 1%	Ingestion/Oral-Rat LD50 • 9 g/kg	<b>UN GHS:</b> Flam. Sol. 2; Skin Irrit. 3; Eye Irrit. 2; Repr. 2 (Orl); STOT RE 1 (CNS, Lungs, Inhl) <b>EU CLP:</b> Flam. Sol. 2, H228; Eye Irrit. 2, H319; Repr. 2, H361 (Orl); STOT RE 1, H373 (CNS, Lungs, Inhl) <b>OSHA HCS 2012:</b> Flam. Sol. 2; Comb. Dust; Eye Irrit. 2; Repr. 2 (Orl); STOT RE 1 (CNS, Lungs, Inhl); Hazard Not Otherwise Classified - Health Hazard - Metal fume fever	NDA

See Section 16 for full text of H-statements.

## Section 4 - First Aid Measures

### 4.1 Description of first aid measures

#### Inhalation

- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Get medical attention.

- Skin**
- Wash skin with soap and water. Remove clothing and wash thoroughly before use. If irritation develops and persists, get medical attention.
- Eye**
- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. Get medical attention.
- Ingestion**
- Not expected to be an important route of entry into the body. If entire welding studs or large fragments are ingested, seek medical attention.

#### 4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

#### 4.3 Indication of any immediate medical attention and special treatment needed

##### Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

## Section 5 - Firefighting Measures

### 5.1 Extinguishing media

- Suitable Extinguishing Media**
- LARGE FIRE: Water spray, fog or regular foam.
  - SMALL FIRES: Dry chemical, CO<sub>2</sub>, water spray or regular foam.

##### Unsuitable Extinguishing Media

- No data available.

### 5.2 Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards**
- This product is non-combustible and does not present a fire hazard.

##### Hazardous Combustion Products

- No data available.

### 5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

## Section 6 - Accidental Release Measures

### 6.1 Personal precautions, protective equipment and emergency procedures

##### Personal Precautions

- Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

##### Emergency Procedures

- Eliminate all ignition sources. As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. Keep unauthorized personnel away.

### 6.2 Environmental precautions

- Avoid run off to waterways and sewers.

### 6.3 Methods and material for containment and cleaning up

##### Containment/Clean-up Measures

- Avoid generating dust.
- SMALL DRY SPILLS: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
- LARGE SPILLS: Cover powder spill with plastic sheet or tarp to minimize spreading.

### 6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

## Section 7 - Handling and Storage

### 7.1 Precautions for safe handling

#### Handling

- Use only with adequate ventilation. Minimize dust generation and accumulation. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe dust or fumes. Avoid contact with skin, eyes, and clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage

- Keep container closed. Store in a cool, dry, well-ventilated place.

### 7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

## Section 8 - Exposure Controls/Personal Protection

### 8.1 Control parameters

Exposure Limits/Guidelines					
	Result	ACGIH	NIOSH	OSHA	United Kingdom
Manganese (7439-96-5)	STELs	Not established	3 mg/m <sup>3</sup> STEL	Not established	1.5 mg/m <sup>3</sup> STEL (calculated)
	TWAs	0.02 mg/m <sup>3</sup> TWA (respirable fraction); 0.1 mg/m <sup>3</sup> TWA (inhalable fraction)	1 mg/m <sup>3</sup> TWA (fume)	Not established	0.5 mg/m <sup>3</sup> TWA (as Mn)
	Ceilings	Not established	Not established	5 mg/m <sup>3</sup> Ceiling (fume)	Not established

### 8.2 Exposure controls

#### Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment).

#### Personal Protective Equipment

##### Respiratory

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

##### Eye/Face

- Wear safety goggles.

##### Skin/Body

- Wear appropriate gloves.

#### Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

#### Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

## Section 9 - Physical and Chemical Properties

## 9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Gray metallic solid, various sizes.
Color	Gray metallic.	Odor	Data lacking
Odor Threshold	Data lacking		
General Properties			
Boiling Point	Data lacking	Melting Point/Freezing Point	1510 C(2750 F)
Decomposition Temperature	2750 F(1510 C)	pH	Data lacking
Specific Gravity/Relative Density	= 7.5 Water=1	Water Solubility	Insoluble
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

## 9.2 Other Information

- No additional physical and chemical parameters noted.

## Section 10: Stability and Reactivity

### 10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

- Stable under normal temperatures and pressures.

### 10.3 Possibility of hazardous reactions

- Hazardous polymerization not indicated.

### 10.4 Conditions to avoid

- Avoid generating dust.

### 10.5 Incompatible materials

- Acids and strong oxidizing agents.

### 10.6 Hazardous decomposition products

- None known.

## Section 11 - Toxicological Information

### 11.1 Information on toxicological effects

Components	
	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 750 mg/kg; <b>Blood:</b> Changes in serum composition (e.g., TP, bilirubin cholesterol); <b>Biochemical:</b> Enzyme inhibition, induction, or change in blood or tissue

Iron (95% TO 99%)	7439-89-6	<b>Levels:Transaminases</b> ; Ingestion/Oral-Child TDLo • 77 mg/kg; <b>Behavioral:Irritability</b> ; <b>Gastrointestinal:Nausea or vomiting</b> ; <b>Blood:Normocytic anemia</b> ; <b>Multi-dose Toxicity</b> : Ingestion/Oral-Rat TDLo • 105 mg/kg 5 Week(s)-Continuous; <b>Liver:Tumors</b> ; <b>Tumorigenic:Active as anti-cancer agent</b> ; <b>Tumorigenic:Protects against induction of experimental tumors</b>
Manganese (0% TO 1%)	7439-96-5	<b>Acute Toxicity</b> : Ingestion/Oral-Rat LD50 • 9 g/kg; <b>Irritation</b> : Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation; <b>Multi-dose Toxicity</b> : Inhalation-Human TCLo • 0.5 mg/m <sup>3</sup> 39 Week(s)-Intermittent; <b>Brain and Coverings:Other degenerative changes</b> ; <b>Peripheral Nerve and Sensation:Sensory change involving peripheral nerve</b> ; <b>Behavioral:Irritability</b> ; Inhalation-Mouse TCLo • 0.7 mg/m <sup>3</sup> 24 Hour(s) 22 Week(s)-Continuous; <b>Lungs, Thorax, or Respiration:Fibrosis (interstitial)</b> ; <b>Immunological Including Allergic:Decrease in cellular immune response</b> ; Inhalation-Rat TCLo • 0.3 mg/m <sup>3</sup> 5 Hour(s) 26 Week(s)-Intermittent; <b>Lungs, Thorax, or Respiration:Fibrosis (interstitial)</b> ; <b>Immunological Including Allergic:Decrease in cellular immune response</b> ; <b>Reproductive</b> : Ingestion/Oral-Mouse TDLo • 322.5 mg/kg (43D male); <b>Reproductive Effects:Paternal Effects:Spermatogenesis</b> ; Ingestion/Oral-Rat TDLo • 50 mg/kg (20D post); <b>Reproductive Effects:Specific Developmental Abnormalities:Central nervous system</b> ; <b>Reproductive Effects:Effects on Newborn:Biochemical and metabolic</b> ; <b>Reproductive Effects:Effects on Newborn:Behavioral</b>

GHS Properties	Classification
Respiratory sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Serious eye damage/Irritation	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Acute toxicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Aspiration Hazard	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Carcinogenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Germ Cell Mutagenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Skin corrosion/Irritation	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
Skin sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
STOT-RE	EU/CLP • Specific Target Organ Toxicity Repeated Exposure 2 OSHA HCS 2012 • Specific Target Organ Toxicity Repeated Exposure 1 UN GHS • Specific Target Organ Toxicity Repeated Exposure 1
STOT-SE	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking UN GHS • Data lacking
	EU/CLP • Data lacking

**Toxicity for Reproduction**

OSHA HCS 2012 • Toxic to Reproduction 2

UN GHS • Toxic to Reproduction 2

**Potential Health Effects****Inhalation****Acute (Immediate)**

- Exposure to dust may cause irritation. Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

**Chronic (Delayed)**

- Repeated and prolonged exposure to dust may cause lung effects including pneumoconiosis.

**Skin****Acute (Immediate)**

- Exposure to dust may cause mechanical irritation.

**Chronic (Delayed)**

- No data available.

**Eye****Acute (Immediate)**

- Exposure to dust may cause mechanical irritation. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.

**Chronic (Delayed)**

- No data available.

**Ingestion****Acute (Immediate)**

- Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

**Chronic (Delayed)**

- No data available.

**Other****Chronic (Delayed)**

- Chronic exposure to Manganese dust and fumes can cause Manganism (Parkinson like disease).

**Reproductive Effects**

- Repeated and prolonged exposure may cause reproductive effects.

**11.2 Other information**

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.

**Key to abbreviations**

LD = Lethal Dose

TC = Toxic Concentration

TD = Toxic Dose

**Section 12 - Ecological Information****12.1 Toxicity**

- The product is not expected to present an environmental hazard.

**12.2 Persistence and degradability**

- Material data lacking.

**12.3 Bioaccumulative potential**

- Material data lacking.

**12.4 Mobility in Soil**

- Material data lacking.

**12.5 Results of PBT and vPvB assessment**

- No PBT and vPvB assessment has been conducted.



## 12.6 Other adverse effects

- No studies have been found.

## Section 13 - Disposal Considerations

### 13.1 Waste treatment methods

#### Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

#### Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

## Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

#### 14.6 Special precautions for user

- None specified.

#### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Data lacking.

## Section 15 - Regulatory Information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### SARA Hazard Classifications

- Chronic

Inventory				
Component	CAS	EU EINECS	EU ELNICS	TSCA
Iron	7439-89-6	Yes	No	Yes
Manganese	7439-96-5	Yes	No	Yes

### United States

#### Labor

##### U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

- |             |           |            |
|-------------|-----------|------------|
| • Manganese | 7439-96-5 | Not Listed |
| • Iron      | 7439-89-6 | Not Listed |

##### U.S. - OSHA - Specifically Regulated Chemicals

- |             |           |            |
|-------------|-----------|------------|
| • Manganese | 7439-96-5 | Not Listed |
| • Iron      | 7439-89-6 | Not Listed |

**Environment****U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - CERCLA/SARA - Section 313 - Emission Reporting**

• Manganese	7439-96-5	1.0 % de minimis concentration
• Iron	7439-89-6	Not Listed

**U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**United States - California****Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - California - Proposition 65 - Developmental Toxicity**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - California - Proposition 65 - Reproductive Toxicity - Female**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

**U.S. - California - Proposition 65 - Reproductive Toxicity - Male**

• Manganese	7439-96-5	Not Listed
• Iron	7439-89-6	Not Listed

## 15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

### Section 16 - Other Information

#### Relevant Phrases (code & full text)

- H228 - Flammable solid
- H302 - Harmful if swallowed
- H319 - Causes serious eye irritation
- H361 - Suspected of damaging fertility or the unborn child.
- H413 - May cause long lasting harmful effects to aquatic life

#### Revision Date

- 01/December/2015

#### Preparation Date

- 01/April/1994

#### Disclaimer/Statement of Liability

- The information herein is given in good faith but no warranty, expressed or implied, is made.

#### Key to abbreviations

NDA = No data available