



Carbon Steel Wire

Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Carbon Steel Wire

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

Use of the substance/mixture : Manufacturing

1.3. Details of the supplier of the safety data sheet

Radnor Products
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This product as manufactured is defined as an article per 29 CFR 1910.1200. No exposure hazards are anticipated during normal product handling conditions. In most cases, the material(s) removed from the workpiece may present a greater hazard than material released by the product. Based upon the materials that are contained within the working portion of this product it is possible that some dust particles from this product may be generated. The following safety data is presented for potential exposure hazards as associated with the dust particles that are related to this product.

Classification (GHS-US)

Not classified

2.2. Label elements

GHS-US labeling

This product as manufactured is defined as an article, therefore no labeling is required for the product as manufactured.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Iron	(CAS No) 7439-89-6	95 - 99	Acute Tox. 4 (Oral), H302
Manganese	(CAS No) 7439-96-5	0.25 - 1.65	Not classified
Silicon	(CAS No) 7440-21-3	<= 1.6	Not classified
Chromium	(CAS No) 7440-47-3	0.01 - 1.5	Not classified
Lead	(CAS No) 7439-92-1	0.000 - 0.005	Carc. 1B, H350
Carbon	(CAS No) 7440-44-0	0.01 - 1.1	Not classified
Vanadium	(CAS No) 7440-62-2	0.00 - 0.35	Not classified
Phosphorus elemental	(CAS No) 7723-14-0	<= 0.04	Not classified
Sulfur	(CAS No) 7704-34-9	0.000 - 0.035	Skin Irrit. 2, H315

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim from source of exposure to fresh air. If breathing is difficult administer oxygen. Seek medical attention.

First-aid measures after skin contact : Wash with soap and water. Seek medical advice if skin irritation develops or persists.

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First-aid measures after eye contact : Flush with plenty of water for at least 15 minutes. Seek medical advice if irritation develops or persists.

First-aid measures after ingestion : Seek medical attention.

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

Symptoms/injuries after inhalation : May cause respiratory irritation including flu-like symptoms (metal fume fever); may include fever, chills, nausea, vomiting, appears 4-12 hours after exposure.

Symptoms/injuries after skin contact : May cause irritation and dermatitis.

Symptoms/injuries after eye contact : May cause irritation.

Symptoms/injuries after ingestion : None under normal use.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

None.

6.3. Methods and material for containment and cleaning up

For containment : No special measures required.

Methods for cleaning up : No special measures required.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with eyes, skin and clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : No special storage conditions required.

7.3. Specific end use(s)

No additional information available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Iron (7439-89-6)		
ACGIH	Not applicable	
OSHA	Not applicable	
Phosphorus elemental (7723-14-0)		
ACGIH	ACGIH TWA (mg/m ³)	0.1 mg/m ³
OSHA	OSHA PEL (mg/m ³)	0.1 mg/m ³
Sulfur (7704-34-9)		
ACGIH	ACGIH TWA (mg/m ³)	0.25 ppm (as SO ₂)
OSHA	OSHA PEL (mg/m ³)	13 mg/m ³
Silicon (7440-21-3)		
ACGIH	Not applicable	
OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
Carbon (7440-44-0)		
ACGIH	Not applicable	
OSHA	OSHA PEL (mg/m ³)	15 mg/m ³
Manganese (7439-96-5)		
ACGIH	ACGIH TWA (mg/m ³)	0.02 mg/m ³ (respirable fraction) 0.1 mg/m ³ (inhalable fraction)
OSHA	OSHA PEL (Ceiling) (mg/m ³)	5 mg/m ³ (fume)
Vanadium (7440-62-2)		
ACGIH	Not applicable	
OSHA	OSHA PEL (Ceiling) (mg/m ³) (as C ₂ O ₅)	0.5 mg/m ³
Chromium (7440-47-3)		
ACGIH	ACGIH TWA (mg/m ³)	0.5 mg/m ³
OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
Lead (7439-92-1)		
ACGIH	ACGIH TWA (mg/m ³)	0.05 mg/m ³
OSHA	OSHA PEL (TWA) (mg/m ³)	0.05 mg/m ³

Note: Consideration should be given to the base material and coating that are being worked upon.

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8.2. Exposure controls

Appropriate engineering controls:

Utilize adequate ventilation to minimize the exposure to airborne particulates and maintain the concentration of contaminants below the occupational exposure limits.

Respiratory Protection:

When exposure limits are exceeded or when the dust concentrations are excessive, approved respirators for those conditions should be used. When selecting the respiratory protection equipment, consideration of the exposure to the coating or the base materials being worked on should be included. Local regulations and standards should be followed where appropriate. The type of respiratory equipment used should be selected according to the contaminate type, form and concentration being produced. Select and use respirators in accordance with applicable regulations and good industrial hygiene practice.

Hand protection:

The use of cloth or leather gloves is recommended.

Eye Protection:

Safety goggles or face shield over safety glasses with side shields.

Hearing Protection:

Hearing protection may be required.

Skin and body protection:

The use of protective clothing should be used as needed to prevent the contamination of personal clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Color	: Gray-black
Odor	: odorless
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Specific gravity	: 7
Relative vapor density at 20 °C	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

None.

10.6. Hazardous decomposition products

Metal fumes, iron oxide, manganese, vanadium and chromium.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

Carbon Steel Wire	
ATE US (oral)	993.939 mg/kg body weight
Iron (7439-89-6)	
LD50 oral rat	984 mg/kg
ATE US (oral)	984.000 mg/kg
Phosphorus elemental (7723-14-0)	
LD50 oral rat	3.03 mg/kg
LD50 dermal rat	100 mg/kg
LC50 inhalation rat (mg/l)	4.3 mg/l (Exposure time: 1 h)
Sulfur (7704-34-9)	
LD50 oral rat	> 3000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 9.23 mg/l/4h
Carbon (7440-44-0)	
LD50 oral rat	> 10000 mg/kg
Manganese (7439-96-5)	
ATE US (oral)	9000000.000 mg/kg
Lead (7439-92-1)	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	3 - Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

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SECTION 12: Ecological information

12.1. Toxicity

Phosphorus elemental (7723-14-0)	
LC50 fish 1	0.0017 - 0.0035 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	0.001 - 0.004 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 2	0.025 - 0.037 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
Sulfur (7704-34-9)	
LC50 fish 1	866 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
LC50 fish 2	< 14 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
Lead (7439-92-1)	
LC50 fish 1	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 1	600 µg/l (Exposure time: 48 h - Species: water flea)
LC50 fish 2	1.17 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Phosphorus elemental (7723-14-0)	
BCF fish 1	< 200

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer : No additional information available
Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT
Not a dangerous good as defined in transport regulations

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SECTION 15: Regulatory information

15.1. US Federal regulations

Iron (7439-89-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Phosphorus elemental (7723-14-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 302 (Specific toxic chemical listings)

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 302 Threshold Planning Quantity (TPQ)	100 (This material is a reactive solid. The TPQ does not default to 10000 pounds for non-powder, non-molten, non-solution form)
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SARA Section 313 - Emission Reporting	1.0 % (yellow or white)
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Sulfur (7704-34-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Silicon (7440-21-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Carbon (7440-44-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Manganese (7439-96-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 313 - Emission Reporting	1.0 %
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Vanadium pentoxide (1314-62-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 302 (Specific toxic chemical listings)

SARA Section 302 Threshold Planning Quantity (TPQ)	≤ 10000
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Chromium (7440-47-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 313 - Emission Reporting	1.0 %
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Lead (7439-92-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 313 - Emission Reporting	0.1 %
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Iron (7439-89-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State regulations

Lead (7439-92-1)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
Yes	Yes	Yes	Yes	15 µg/day

Phosphorus elemental (7723-14-0)

U.S. - Massachusetts - Right To Know List
 U.S. - New Jersey - Right to Know Hazardous Substance List
 U.S. - Pennsylvania - RTK (Right to Know) List

Sulfur (7704-34-9)

U.S. - Massachusetts - Right To Know List
 U.S. - New Jersey - Right to Know Hazardous Substance List
 U.S. - Pennsylvania - RTK (Right to Know) List

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Silicon (7440-21-3)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Manganese (7439-96-5)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Vanadium pentoxide (1314-62-1)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Chromium (7440-47-3)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Lead (7439-92-1)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases::

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Skin Irrit. 2	Skin corrosion/irritation Category 2
H302	Harmful if swallowed
H315	Causes skin irritation
H350	May cause cancer

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product