



Material Safety Data Sheet

Material Name: Prestressing Steel Strand (PC Strand)

*** Section 1 - Chemical Product and Company Identification ***

Manufacturer Information

Sumiden Wire Products Corporation
710 Marshall Stuart Drive
Dickson, TN 37055
Phone: 615-466-3199
Fax: 615-740-1518

Sumiden Wire Products Corporation
1412 El Pinal Drive
Stockton, CA 95205
Phone: 209-466-8924
Fax: 209-941-2990

*** Section 2 - Hazards Identification ***

Emergency Overview

May cause eye, skin and respiratory irritation.

Potential Health Effects: Eyes

Fumes or dusts may cause irritation.

Potential Health Effects: Skin

Dermatitis due to sensitization may occur in some individuals from exposure to nickel and chromium fumes.

Potential Health Effects: Ingestion

Not considered a likely route of exposure. If swallowed, may cause gastrointestinal irritation.

Potential Health Effects: Inhalation

No toxic effects would be expected from its inert solid form. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, brazing or welding may cause adverse health effects associated with the following constituents:

Iron: Siderosis, no fibrosis

Chromium: The dusts of chromium metal are usually reported to be relatively non-toxic, although there are reports of a nodular type of disease with impairment of lung function. Some insoluble chromium compounds are suspect carcinogens.

Nickel: Respiratory irritation and pneumonitis; several nickel compounds, including nickel oxide, are suspect lung and nasal carcinogens.

Manganese: Pneumonitis, CNS involvement, including irritability, difficulty in walking, speech disorders, compulsive behavior, mask-like face and Parkinson-like syndrome.

Silicon: May produce X-ray changes in the lungs without disability.

Note: Some constituents pose more potential hazards than others, depending upon their inherent toxicity and concentration. Of special concern are chromium, nickel, manganese, and perhaps iron.

HMIS Ratings: Health: 1 Fire: 0 HMIS Reactivity 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
7439-89-6	Iron	>92
7440-02-0	Nickel	<4
7440-21-3	Silicon	<2.2
7439-96-5	Manganese	<2

Material Safety Data Sheet

Material Name: Prestressing Steel Strand (PC Strand)

7440-47-3	Chromium	<2
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*** Section 4 - First Aid Measures ***

First Aid: Eyes

In case of contact, immediately wash eyes with large amounts of water for fifteen minutes, occasionally lifting the lower and upper lids. Seek medical attention, if necessary.

First Aid: Skin

If irritation develops, remove contaminated clothing immediately, and wash contaminated skin with soap or mild detergent and water for five minutes. If irritation persists, seek medical attention.

First Aid: Ingestion

Seek medical attention, if necessary.

First Aid: Inhalation

Seek medical attention, if necessary.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammability Properties.
None

Hazardous Combustion Products

Metal fumes and certain noxious gases, such as CO, may be produced during welding or burning operations.

Extinguishing Media

Use media appropriate for surrounding fire.

Fire Fighting Equipment/Instructions

None

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

No special containment necessary.

Clean-Up Procedures

No special measures necessary.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

None

*** Section 7 - Handling and Storage ***

Handling Procedures

Strand has spring action. Use caution when handling. During welding, precautions should be taken for airborne contaminants and noxious gases that may originate from the welding process or from components of the welding rod. Of special concern are silica or silicates, fluorides, copper, manganese, carbon monoxide and nitrogen oxides. Arc and sparks generated when welding with this product could be source of ignition for combustible and flammable materials.

Storage Procedures

No special storage procedures.

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits

Nickel (7440-02-0)

ACGIH: 1.5 mg/m³ TWA (inhalable fraction)

OSHA: 1 mg/m³ TWA

NIOSH: 0.015 mg/m³ TWA

Material Safety Data Sheet

Material Name: Prestressing Steel Strand (PC Strand)

Silicon (7440-21-3)

OSHA: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
NIOSH: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)

Manganese (7439-96-5)

ACGIH: 0.2 mg/m3 TWA
OSHA: 1 mg/m3 TWA (fume)
3 mg/m3 STEL (fume)
5 mg/m3 Ceiling
NIOSH: 1 mg/m3 TWA (fume)
3 mg/m3 STEL

Chromium (7440-47-3)

ACGIH: 0.5 mg/m3 TWA
OSHA: 1 mg/m3 TWA
NIOSH: 0.5 mg/m3 TWA

Engineering Controls

Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Use face shield (8" minimum) and/or goggles when welding, burning or grinding.

Personal Protective Equipment: Skin

Use appropriate clothing, such as welder's aprons and gloves when welding or burning.

Personal Protective Equipment: Respiratory

A properly fitted, NIOSH approved, dust-fume respirator should be worn during welding or burning whenever welding fumes exceed the threshold limit value (TLV) or other recommended limits, in accordance with the OSHA Respiratory Protection Standard.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended when cutting or grinding the product.

*** Section 9 - Physical & Chemical Properties ***

Appearance:	Metallic	Odor:	None
Physical State:	Solid	pH:	NA
Vapor Pressure:	NA	Vapor Density:	NA
Boiling Point:	NA	Melting Point:	ND
Solubility (H2O):	NA	Specific Gravity:	Approx. 8
Evaporation Rate:	NA	VOC:	ND
Octanol/H2O Coeff.:	ND	Flash Point:	NA
Flash Point Method:	NA	Upper Flammability Limit (UFL):	NA
Lower Flammability Limit (LFL):	NA	Burning Rate:	NA
Auto Ignition:	NA		

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

This is a stable material.

Chemical Stability: Conditions to Avoid

None

Incompatibility

None

Hazardous Decomposition

Metal fumes and certain noxious gases, such as CO, may be produced during welding or burning operations.

Material Safety Data Sheet

Material Name: Prestressing Steel Strand (PC Strand)

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

Component Analysis - LD50/LC50

Iron (7439-89-6)

Oral LD50 Rat: 984 mg/kg

Nickel (7440-02-0)

Oral LD50 Rat: >9000 mg/kg

Silicon (7440-21-3)

Oral LD50 Rat: 3160 mg/kg

Manganese (7439-96-5)

Oral LD50 Rat: 9 g/kg

Carcinogenicity

Component Carcinogenicity

Nickel (7440-02-0)

ACGIH: A5 - Not Suspected as a Human Carcinogen

NIOSH: potential occupational carcinogen

NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)

IARC: Monograph 49 [1990], Supplement 7 [1987] (Group 2B (possibly carcinogenic to humans))

Chromium (7440-47-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 49 [1990] (listed under Chromium and Chromium compounds), Supplement 7 [1987] (Group 3 (not classifiable))

*** Section 12 - Ecological Information ***

Ecotoxicity

Component Analysis - Ecotoxicity - Aquatic Toxicity

Iron (7439-89-6)

Test & Species

96 Hr LC50 Morone saxatilis 13.6 mg/L [static]

Conditions

Nickel (7440-02-0)

Test & Species

96 Hr LC50 Oncorhynchus mykiss 31.7 mg/L

96 Hr LC50 Pimephales promelas 3.1 mg/L

96 Hr LC50 Brachydanio rerio >100 mg/L

72 Hr EC50 freshwater algae (4

species)

72 Hr EC50 Selenastrum 0.18 mg/L

capricornutum

96 Hr EC50 water flea 510 µg/L

Conditions

adult

Material Safety Data Sheet

Material Name: Prestressing Steel Strand (PC Strand)

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

This product contains a component identified as hazardous under 40 CFR 261.24.

B: Component Waste Numbers

Chromium (7440-47-3)

RCRA: 5.0 mg/L regulatory level

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not Regulated

*** Section 15 - Regulatory Information ***

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Nickel (7440-02-0)

SARA 313: 0.1 % de minimis concentration

CERCLA: 100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)

Manganese (7439-96-5)

SARA 313: 1.0 % de minimis concentration

Chromium (7440-47-3)

SARA 313: 1.0 % de minimis concentration

CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 2270 kg final RQ (no reporting of releases of this hazardous material is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Iron	7439-89-6	Yes	No	No	No	No	No
Nickel	7440-02-0	Yes	Yes	Yes	Yes	Yes	Yes
Silicon	7440-21-3	No	Yes	Yes	Yes	Yes	Yes
Manganese	7439-96-5	Yes	Yes	Yes	Yes	Yes	Yes
Chromium	7440-47-3	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

Material Safety Data Sheet

Material Name: Prestressing Steel Strand (PC Strand)

WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Nickel	7440-02-0	0.1 %
Manganese	7439-96-5	1 %
Chromium	7440-47-3	0.1 %

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Iron	7439-89-6	Yes	DSL	EINECS
Nickel	7440-02-0	Yes	DSL	EINECS
Silicon	7440-21-3	Yes	DSL	EINECS
Manganese	7439-96-5	Yes	DSL	EINECS
Chromium	7440-47-3	Yes	DSL	EINECS

*** Section 16 - Other Information ***

Other Information

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

Key/Legend

NA - Not Applicable
ND - Not Determined
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
TLV - Threshold Limit Value
PEL - Permissible Exposure Limit
TWA - Time Weighted Average
STEL - Short Term Exposure Limit
NTP - National Toxicology Program
IARC - International Agency for Research on Cancer