



SAFETY DATA SHEET (SDS)

Page: 1 of 5
SDS No.: CWL-M103-AE
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Section 1 Identification

Product Name: CenterLine® Stainless Steel Components and Material
Synonyms: • Miscellaneous wrought and cast stainless steel solids (including SS303, SS304, SS316 alloys).
Recommended Use: Nonmagnetic grades of stainless steel are used for a wide range of tooling, equipment and machine components that benefit from its low magnetic permeability and low rate of corrosion.
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Section 2 Hazard(s) identification

During normal operation and usage, this solid material article does not present inhalation, ingestion, or chemical hazards. When this article is machined or otherwise modified by the user, dust or fumes may be potentially hazardous if the exposure limits described in Section 3 are exceeded.

Chromium(VI), nickel, and cobalt, which may be liberated in dust or fume, are suspected to be of carcinogenic potential.

Section 3 Composition/information on ingredients

Where present, listed constituents are dispersed in a solid alloy matrix. Concentration percent by weight (% WT) must not be interpreted as a specification for a particular product.

MATERIAL OR COMPONENT	CAS. NO.	EINECS NO.	% WT	OSHA-PEL ^a	ACGIH-TLV ^a
MAY CONTAIN THE FOLLOWING:					
1. Iron	7439-89-6	231-096-4	< 88	5 mg/m ^{3b}	5 mg/m ^{3b}
2. Chromium	7440-47-3	231-157-5	< 27	0.5 mg/m ³	0.5 mg/m ³
3. Nickel	7440-02-0	231-111-4	< 27	0.5 mg/m ³	1.5 mg/m ³
4. Manganese	7439-96-5	231-105-1	< 6	5 mg/m ³	0.02 mg/m ³
5. Molybdenum	7439-98-7	231-107-2	< 6	3 mg/m ^{3b}	3 mg/m ^{3b}
6. Copper	7440-50-8	231-159-6	< 6	0.1 mg/m ^{3b}	0.2 mg/m ^{3b}
7. Silicon	7440-21-3	231-130-8	< 2	5 mg/m ³	10 mg/m ³
8. Cobalt	7440-48-4	231-158-0	< 2	0.1 mg/m ³	0.02 mg/m ³
9. Carbon	7440-44-0	231-153-3	< 1	1.5 mg/m ³	2.5 mg/m ³
10. Sulfur	7704-34-9	231-722-6	< 0.4	13 mg/m ^{3b}	5 mg/m ^{3b}
11. Titanium	7440-32-6	231-142-3	< 0.4	15 mg/m ^{3b}	10 mg/m ^{3b}
12. Phosphorous	7723-14-0	231-768-7	< 0.2	0.1 mg/m ³	0.1 mg/m ³
13. Niobium	7440-03-1	231-113-5	< 0.05	N/E ^c	N/E ^c
14. Tin	7440-31-5	231-141-8	< 0.04	2 mg/m ³	2 mg/m ³

^a Other national or regional values or measures of exposure may be required at the point of use.

^b As metal or oxide dust or fume.

^c N/E = Not evaluated.

Section 4 First-aid measures

Show this SDS to those administering medical attention or treatment.

Inhalation: If breathing has stopped, perform artificial respiration and obtain medical aid immediately. If persistent irritation, severe coughing, or breathing is difficult, provide fresh air and seek medical attention as soon as possible.

Skin: Cuts or abrasions should be treated promptly with thorough cleansing of the affected area. Wash the skin using soap or mild detergent and water. Get medical attention if irritation or dermatitis develops and persists.

Eyes: Eye injuries from solid particles should receive immediate medical attention. Dust may be flushed from eyes immediately with large amounts of water, lifting the lower and upper lids occasionally; seek medical attention.



Ingestion: If the product or dust is swallowed, seek immediate medical attention or advice. Do not induce vomiting.

Section 5 Fire-fighting measures

Suitable extinguishing media: This solid material is noncombustible. Use extinguishing media appropriate to the surrounding fire.

Special Fire Fighting Procedures: Not applicable.

Unusual fire and explosion hazard: Not applicable.

Hazardous combustion products: Temperatures above the melting point may release alloy elements and metal oxides.

Special protective equipment and precautions for fire-fighters: For a dust fire confined to a small area, use a respirator approved for toxic dusts and fumes. Do not use water to extinguish fires around operations involving molten metal due to the potential for steam explosions.

Section 6 Accidental release measures

Clean-Up Procedures: Product in solid form may be picked up by hand or other means to be placed into a container. When cleaning dust, use methods that minimize the dispersion of dust such as a high efficiency particulate air (HEPA) vacuum, wet dust mop, or wet clean-up. Put recovered material in a suitable, covered, and labeled container.

Personal precautions, protective equipment and emergency procedures: Refer to Section 8.

Environmental precautions: Refer to Section 12.

Section 7 Handling and storage

Safe handling procedures: This product does not require special safety precautions for handling prior to installation. Installation and removal of the product may cause exposure to dusts and other materials or chemicals associated with the installation (work) environment. Operations such as grinding, cutting, sanding, and shearing may generate dusts or fumes which may require special handling procedures.

Hygienic Practices: Wash hands thoroughly after handling, and before eating or smoking. Smoking and consumption of food or beverages should be restricted from areas where hazardous dust or chemical may be present. Do not shake clothing, rags, or other items to remove dust. Dust should be removed by laundering or vacuuming (with appropriate filters) the clothing, rags, or other items.

Conditions for safe storage: Maintain good housekeeping to prevent exposure to materials and chemicals that may contaminate or impair the quality of the product.

Section 8 Exposure controls/personal protection

Control parameters: Refer to table in Section 3 for occupational exposure limit values.

Appropriate engineering controls: When machining or welding use adequate local (preferably) or general exhaust ventilation to ensure that concentrations of dusts or fumes do not exceed exposure limits. Keep workplace clean and dry. Train personnel to minimize exposure to hazards during installation and replacement of product. On a regular basis, verify condition and proper function of equipment in which the product will be installed.

Individual protection measures: For brief contact with dust, no precautions other than clean clothing are usually required. Use appropriate gloves to protect against physical hazards. Always wear safety glasses with side shields and appropriate hearing protection when grinding or cutting. Use an approved respirator, with the proper assigned protection factor, whenever airborne concentrations of hazardous components exceed exposure limits listed in Section 3 or the table above. Workers should wash before meals and leaving work.

Section 9 Physical and chemical properties

Appearance	Metallic solid with a silver grey color
Odor:	None
Boiling point and range:	~ 2,500 C (4,500 F)
Melting point:	~ 1,480 C (2,700 F)
Flash point:	Not determined
Evaporation rate:	Not volatile
Flammability:	Not flammable



Vapor pressure: ~ 0 mm/Hg
Vapor density: Not volatile
Density: 8 g/cm³ (0.29 lb/in³)
Solubility in water: Insoluble

Note: These are typical values and do not constitute a specification.

Section 10 Stability and reactivity

Reactivity: May react with strong acids to form explosive hydrogen gas and heat.
Chemical Stability: Stable under normal use conditions
Possibility of hazardous reactions: Potentially hazardous oxides of metals may be produced when this material is heated or welded.
Conditions to avoid: Ignition sources, generation of dust and fines.
Incompatible materials: Oxidizers, strong acids, halogenated agents.
Hazardous decomposition products: Hydrogen gas, aluminum oxide, aluminum fumes.

Section 11 Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Under normal handling and use, exposure to product presents few health hazards. Dusts may cause mechanical irritation to eyes and skin resulting in itching and redness. Ingestion may cause transient irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose and throat irritation, and sneezing. Higher dust exposures may cause difficulty breathing, congestion, and chest tightness.

Delayed and immediate effects and also chronic effects from short and long term exposure

Possible effects by route of exposure:

- Inhalation:** Dust or fume may cause metal fume fever. Breathing metal dust may worsen symptoms of individuals with pre-existing chronic respiratory disease. Inhalation of high concentration of ferric oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Exposure to high concentrations of dust and fumes of chromium and nickel can cause inflammation and/or ulceration of upper respiratory tract and possibly cancer of nasal passages and lungs.
- Skin contact:** Exposure to high concentrations of dust and fumes of chromium and nickel can cause sensitization dermatitis.
- Skin absorption:** Not applicable for product in purchased form.
- Eye contact:** If present as dust, stainless steel may cause irritation and/or sensitization.
- Ingestion:** There is little likelihood of ingestion except for dust created during machining or grinding. Ingestion of dust may cause nausea and/or vomiting. Serious effects may occur if large amounts of dust are swallowed.

Numerical measures of toxicity

The following data has been determined for the elements that may be constituents:

- Iron:** LD₅₀, rat, oral >30 g/kg. The International Agency for Research on Cancer (IARC) lists ferric oxide as Group 3 (not classifiable as to its carcinogenicity to humans).
- Chromium:** LD_{Lo}, female rat, oral, 16 mg/kg. The IARC lists metallic chromium and chromium[III] compounds as Group 3 (not classifiable as to its carcinogenicity to humans). Chromium[VI] is listed under Group 1 (carcinogenic to humans).
- Nickel:** LD_{Lo}, oral 9000 mg/kg. The IARC lists metallic nickel and nickel compounds as a Group 2B carcinogen (possibly carcinogenic to humans).
- Manganese:** LD₅₀, rat, oral > 9,000 mg/kg.
- Molybdenum:** LD₅₀, rat, oral > 2,000 mg/kg.
- Copper:** LD₅₀, mouse, oral > 5,000 mg/kg.
- Silicon:** LD₅₀, rat, oral > 3,160 mg/kg.
- Cobalt:** LD₅₀, rat, oral 6,170 mg/kg. The IARC lists cobalt and cobalt compounds as Group 2B (possibly carcinogenic to humans).
- Carbon:** LD₅₀, rat, oral > 5,000 mg/kg (graphite).



Sulfur: LD₅₀, rat, oral > 5,000 mg/kg.
Titanium: LD₅₀, rat, oral >10,000 mg/kg (titanium dioxide)
Phosphorous: LD₅₀, rat, oral 3,030 µg/kg.
Niobium: LD₅₀, rat, oral > 4,000 mg/kg (niobium pentaoxide).
Tin: LD₅₀, rat, oral > 2,000 mg/kg.

Section 12 Ecological information

This solid product is not expected to present an environmental hazard. Avoid releasing dusts and fumes into the environment.

Section 13 Disposal considerations

Should be recycled whenever possible. The product is not considered a hazardous waste and may be treated as general industrial solid waste if permitted by federal, state, and local disposal regulations.

Section 14 Transport information

UN number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group number: Not applicable
Environmental hazards: Not applicable
IMDG Code: Not applicable
Transport in bulk: Not applicable
Special precautions: No special requirements are necessary in transporting this product.

Section 15 Regulatory information

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Product Regulations (CPR) and the SDS contains all of the information required by the CPR.

The product is not classified as a health or environmental hazard under current legislation including Regulation (EC) No 1272/2008 and the Council Directives 67/548/EEC and 1999/45/EEC. No obligation exists to issue a safety data sheet according to REACH Art. 31.

Chromium, Cobalt, Copper, Manganese, Nickel, and Phosphorous are on the list of toxic chemicals subject to the United States Environmental Protection Agency (EPA) Toxics Release Inventory (TRI) Program reporting requirements. The concentration of phosphorous in this product is below the current de minimis level of 1.0%.

Hazardous Material Identification System (HMIS)

Health Hazard:	1
Flammability Hazard	0
Reactivity Hazard:	0
Maximum Personal Protection:	B

Section 16 Other information

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists
CAS = Chemical Abstracts Service (registry)
EINECS = European Inventory of Existing Commercial Chemical Substances
HMIS = Hazardous Materials Identification System
IARC = International Agency for Research on Cancer
IMDG = International Maritime Dangerous Goods
LD₅₀ = lethal dose (50 percent kill)
LD_{Lo} = lowest published lethal dose
OSHA = Occupational Safety and Health Administration
PEL = permissible exposure limit
TLV = threshold limit value



TWA = time weighted average
UN number = Designation assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.
% WT = percent weight

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