

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).  
Revision Date: 09/20/2018 Date of Issue: 10/30/2014 Version: 2.0

## SECTION 1: IDENTIFICATION

### 1.1. Product Identifier

**Product Form:** Mixture

**Product Name:** Stainless Steel and Alloys of Stainless Steel

**Synonyms:** Alloy #200; Alloy #900; Alloy #STAGCG57; Alloy #342; Alloy #2SA

### 1.2. Intended Use of the Product

**Use Of The Substance/Mixture:** No use is specified.

### 1.3. Name, Address, and Telephone of the Responsible Party

#### Distributor

ThyssenKrupp Materials NA, Inc.  
22355 W. Eleven Mile Road  
Southfield, Michigan 48033  
TEL: 248-233-5713

### 1.4. Emergency Telephone Number

**Emergency Number** : 248-233-5713

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the Substance or Mixture

#### GHS-US/CA Classification

Resp. Sens. 1B	H334
Skin Sens. 1	H317
Carc. 1B	H350
Repr. 2	H361
STOT RE 1	H372

Full text of hazard classes and H-statements : see Section 16.

### 2.2. Label Elements

#### GHS-US/CA Labeling

**Hazard Pictograms (GHS-US/CA)** :



**Signal Word (GHS-US/CA)** :

Danger

**Hazard Statements (GHS-US/CA)** :

H317 - May cause an allergic skin reaction.  
H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled.  
H350 - May cause cancer.  
H361 - Suspected of damaging fertility or the unborn child.  
H372 - Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements (GHS-US/CA)** :

P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P260 - Do not breathe fumes, dust.  
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P272 - Contaminated work clothing should not be allowed out of the workplace.  
P280 - Wear protective gloves, protective clothing, and eye protection.  
P284 - [In case of inadequate ventilation] wear respiratory protection.  
P302+P352 - IF ON SKIN: Wash with plenty of water.  
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P308+P313 - If exposed or concerned: Get medical advice/attention.  
P314 - Get medical advice/attention if you feel unwell.  
P321 - Specific treatment (see Section 4 on this SDS).

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
 P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor.  
 P362+P364 - Take off contaminated clothing and wash it before reuse.  
 P405 - Store locked up.  
 P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

### 2.3. Other Hazards

This product is physiologically inert in its massive form. However, user-generated dust and/or fumes may pose a physiological hazard if inhaled or ingested. Avoid inhalation of metal dusts and fumes. May cause an influenza-like illness. Avoid skin and eye contact with dusts to prevent mechanical irritation. User-generated dust is easily ignited and difficult to extinguish.

### 2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Iron	(CAS-No.) 7439-89-6	66 - 88	Flam. Sol. 1, H228 Self-heat. 1, H251 Comb. Dust
Chromium	(CAS-No.) 7440-47-3	0.01 - 30	Comb. Dust
Nickel	(CAS-No.) 7440-02-0	0.01 - 27	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 3, H412 Comb. Dust
Manganese	(CAS-No.) 7439-96-5	0.01 - 6	Comb. Dust
Molybdenum	(CAS-No.) 7439-98-7	0.01 - 6	Comb. Dust
Titanium	(CAS-No.) 7440-32-6	0.01 - 6	Flam. Sol. 1, H228 Comb. Dust
Copper	(CAS-No.) 7440-50-8	0.01 - 6	Aquatic Acute 1, H400 Aquatic Chronic 3, H412 Comb. Dust
Sulfur dioxide	(CAS-No.) 7446-09-5	0.01 - 2	Press. Gas (Liq.), H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318
Phosphorus elemental	(CAS-No.) 7723-14-0	0.01 - 2	Pyr. Sol. 1, H250 Acute Tox. 1 (Oral), H300 Acute Tox. 2 (Dermal), H310 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Cobalt	(CAS-No.) 7440-48-4	0.01 - 2	Flam. Sol. 2, H228 Eye Irrit. 2A, H319 Resp. Sens. 1B, H334 Skin Sens. 1, H317 Carc. 1B, H350 Repr. 2, H361 Aquatic Chronic 4, H413

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

			Comb. Dust
Carbon	(CAS-No.) 7440-44-0	0.01 - 2	Comb. Dust
Silicon	(CAS-No.) 7440-21-3	0.01 - 2	Comb. Dust
Tungsten	(CAS-No.) 7440-33-7	0 - 1.8	Flam. Sol. 1, H228 Self-heat. 2, H252 Comb. Dust
Niobium	(CAS-No.) 7440-03-1	0 - 1	Comb. Dust Flam. Sol. 1, H228
Aluminum	(CAS-No.) 7429-90-5	0.01 - 0.5	Flam. Sol. 1, H228 Water-react. 2, H261 Comb. Dust
Tantalum	(CAS-No.) 7440-25-7	0.15 - 0.45	Not classified
Selenium	(CAS-No.) 7782-49-2	0.03 - 0.35	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Inhalation:dust,mist), H331 STOT RE 2, H373 Aquatic Chronic 4, H413 Comb. Dust

Full text of H-phrases: see Section 16.

\*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of First-aid Measures

**General:** Never give anything by mouth to an unconscious person. If medical advice is needed, have product container or label at hand.

**Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

**Skin Contact:** Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance.

**Eye Contact:** Removal of solidified molten material from the eyes requires medical assistance. Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

**Ingestion:** Do not induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

### 4.2. Most Important Symptoms and Effects Both Acute and Delayed

**General:** May cause an allergy or asthma symptoms or breathing difficulties if inhaled. Skin sensitization. May cause cancer.

Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. During processing or physical alteration, flakes or powder cause irritation of the respiratory tract, eyes, skin, and are harmful. Molten material may release toxic, and irritating fumes.

**Inhalation:** Exposure may produce an allergic reaction. During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur.

**Skin Contact:** Exposure may produce an allergic reaction. Contact with fumes or metal powder will irritate skin. Contact with hot, molten metal will cause thermal burns. Dust may cause irritation in skin folds or by contact in combination with tight clothing. Mechanical damage via flying particles and chipped slag is possible.

**Eye Contact:** During metal processing, dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes. Mechanical damage via flying particles and chipped slag is possible.

**Ingestion:** Ingestion is not considered a potential route of exposure.

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

**Chronic Symptoms:** May cause cancer. Causes damage to organs through prolonged or repeated exposure. Suspected of damaging fertility. Suspected of damaging the unborn child. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Molybdenum: Chronic exposure to molybdenum compounds is suspected of causing cancer. Compounds are also known to cause irritation to the skin, eyes, and respiratory tract. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. Chronic exposure to cobalt-containing hard metal (dust or fume) can result in a serious lung disease called "hard metal lung disease", which is a type of pneumoconiosis (lung fibrosis). Silicon: Can cause chronic bronchitis and narrowing of the airways. Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Repeated exposure to tantalum alloys may cause fibrosis, chronic rhinitis and "hard metal pneumoconiosis". Overexposure to selenium (selenium poisoning) can cause central nervous system effects, and other intoxication effects. Chronic exposure can lead to anemia, pallor, liver/spleen damage, garlic breath, dermatitis, depression and other effects.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Use extinguishing media appropriate for surrounding fire. Use Class D extinguishing agents on dusts, fines or molten metal. Use coarse water spray on chips and turnings.

**Unsuitable Extinguishing Media:** Do not use water when molten material is involved, may react violently or explosively on contact with water.

### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Dust, chips, or ribbons can be ignited more easily, by an ignition source, by improper machining, or by spontaneous combustion if finely divided and damp.

**Explosion Hazard:** Product itself is not explosive but if dust is generated, dust clouds suspended in air can be explosive.

**Reactivity:** Stable at ambient temperature and under normal conditions of use.

### 5.3. Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

**Firefighting Instructions:** Do not breathe fumes from decomposition.

**Protection During Firefighting:** Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

**Hazardous Combustion Products:** Oxides of nickel. Oxides of copper. Oxides of iron. Chromium oxides. Sulfur oxides.

**Other Information:** Refer to Section 9 for flammability properties.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Do not handle until all safety precautions have been read and understood. Avoid breathing (dust, fumes).

#### 6.1.1. For Non-Emergency Personnel

**Protective Equipment:** Use appropriate personal protective equipment (PPE).

**Emergency Procedures:** Avoid creating or spreading dust.

#### 6.1.2. For Emergency Personnel

**Protective Equipment:** Equip cleanup crew with proper protection. Wear suitable protective clothing, gloves and eye/face protection.

**Emergency Procedures:** Eliminate ignition sources. Evacuate unnecessary personnel, isolate, and ventilate area.

### 6.2. Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

### 6.3. Methods and Materials for Containment and Cleaning Up

**For Containment:** Contain and collect as any solid. Avoid generation of dust during clean-up of spills. If metal is in molten form allow to cool and collect as a solid. If metal is in solid form collect for re-melting purposes.

**Methods for Cleaning Up:** Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

### 6.4. Reference to Other Sections

See Section 8 for Exposure Controls and Personal Protection and Section 13 for Disposal Considerations.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** Product dust is combustible. Use care during processing to minimize generation of dust.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Wash hands and forearms thoroughly after handling. Always wash your hands immediately after handling this product, and once again before leaving the workplace.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations.

**Storage Conditions:** Store in original container. Store in dry protected location to prevent any moisture contact. Keep away from heat and flame.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Alkalis. Corrosive substances in contact with metals may produce flammable hydrogen gas. When molten: water.

**Special Rules on Packaging:** Store in a closed container.

### 7.3. Specific End Use(s)

No use is specified.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

For substances listed in Section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Chromium (7440-47-3)		
Mexico	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
USA IDLH	US IDLH (mg/m <sup>3</sup> )	250 mg/m <sup>3</sup>
Alberta	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
British Columbia	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Manitoba	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
New Brunswick	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Newfoundland & Labrador	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Nova Scotia	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Nunavut	OEL STEL (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (metal)
Nunavut	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (metal)
Northwest Territories	OEL STEL (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (metal)
Northwest Territories	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> (metal)
Ontario	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Prince Edward Island	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Québec	VEMP (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Saskatchewan	OEL STEL (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup>
Saskatchewan	OEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Yukon	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>
<b>Nickel (7440-02-0)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable particulate matter)
<b>USA ACGIH</b>	ACGIH chemical category	Not Suspected as a Human Carcinogen
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.015 mg/m <sup>3</sup>
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup>
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup>
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable particulate matter)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (inhalable fraction)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable fraction)
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (inhalable fraction)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable fraction)
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (inhalable)
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (inhalable fraction)
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable fraction)
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>Manganese (7439-96-5)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> 1 mg/m <sup>3</sup> (fume)
<b>Mexico</b>	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (fume)
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup> (respirable particulate matter) 0.1 mg/m <sup>3</sup> (inhalable particulate matter)
<b>USA ACGIH</b>	ACGIH chemical category	Not Classifiable as a Human Carcinogen
<b>USA OSHA</b>	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (fume)
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (fume)
<b>USA NIOSH</b>	NIOSH REL (STEL) (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	500 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup> (respirable particulate matter) 0.1 mg/m <sup>3</sup> (inhalable particulate matter)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup> (respirable particulate matter) 0.1 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup> (respirable particulate matter) 0.1 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	0.6 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	0.6 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup> (respirable particulate matter) 0.1 mg/m <sup>3</sup> (inhalable particulate matter)

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (total dust and fume)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	0.6 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Yukon</b>	OEL Ceiling (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Molybdenum (7439-98-7)</b>		
	Internal TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (Molybdenum (as Mo), Soluble Compounds)
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable particulate matter) 3 mg/m <sup>3</sup> (respirable particulate matter)
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (Molybdenum (as Mo), Soluble Compounds) 15 mg/m <sup>3</sup> (Molybdenum (as Mo), Insoluble Compounds (Total dust))
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (Molybdenum (as Mo), Soluble Compounds)
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	5000 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total) 3 mg/m <sup>3</sup> (respirable)
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable) 10 mg/m <sup>3</sup> (inhalable)
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter) 10 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter) 10 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter) 10 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (metal-inhalable fraction) 6 mg/m <sup>3</sup> (metal-respirable fraction)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal-inhalable fraction) 3 mg/m <sup>3</sup> (metal-respirable fraction)
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (metal-inhalable fraction) 6 mg/m <sup>3</sup> (metal-respirable fraction)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal-inhalable fraction) 3 mg/m <sup>3</sup> (metal-respirable fraction)
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal-inhalable) 3 mg/m <sup>3</sup> (metal-respirable)
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter) 10 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (inhalable fraction) 6 mg/m <sup>3</sup> (respirable fraction)
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable fraction) 3 mg/m <sup>3</sup> (respirable fraction)
<b>Copper (7440-50-8)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Mexico</b>	OEL STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (fume) 2 mg/m <sup>3</sup> (dust and mist)
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume)
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (dust and mist) 0.1 mg/m <sup>3</sup> (fume)
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	100 mg/m <sup>3</sup> (dust, fume and mist)
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (dust and mist) 0.2 mg/m <sup>3</sup> (fume)
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (dust and mist) 0.6 mg/m <sup>3</sup> (fume)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (dust and mist) 0.6 mg/m <sup>3</sup> (fume)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	0.6 mg/m <sup>3</sup> (fume) 3 mg/m <sup>3</sup> (dust and mist)
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 2 mg/m <sup>3</sup> (dust and mist)
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
<b>Sulfur dioxide (7446-09-5)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Mexico</b>	OEL TWA (ppm)	2 ppm
<b>Mexico</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Mexico</b>	OEL STEL (ppm)	5 ppm
<b>USA ACGIH</b>	ACGIH STEL (ppm)	0.25 ppm
<b>USA ACGIH</b>	ACGIH chemical category	Not Classifiable as a Human Carcinogen
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) (ppm)	5 ppm
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (TWA) (ppm)	2 ppm
<b>USA NIOSH</b>	NIOSH REL (STEL) (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (STEL) (ppm)	5 ppm
<b>USA IDLH</b>	US IDLH (ppm)	100 ppm
<b>Alberta</b>	OEL STEL (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
<b>Alberta</b>	OEL STEL (ppm)	5 ppm
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA (ppm)	2 ppm
<b>British Columbia</b>	OEL STEL (ppm)	5 ppm
<b>British Columbia</b>	OEL TWA (ppm)	2 ppm
<b>Manitoba</b>	OEL STEL (ppm)	0.25 ppm
<b>New Brunswick</b>	OEL STEL (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL STEL (ppm)	5 ppm
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>



# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>New Brunswick</b>	OEL TWA (ppm)	2 ppm
<b>Newfoundland &amp; Labrador</b>	OEL STEL (ppm)	0.25 ppm
<b>Nova Scotia</b>	OEL STEL (ppm)	0.25 ppm
<b>Nunavut</b>	OEL STEL (ppm)	5 ppm
<b>Nunavut</b>	OEL TWA (ppm)	2 ppm
<b>Northwest Territories</b>	OEL STEL (ppm)	5 ppm
<b>Northwest Territories</b>	OEL TWA (ppm)	2 ppm
<b>Ontario</b>	OEL STEL (mg/m <sup>3</sup> )	10.4 mg/m <sup>3</sup>
<b>Ontario</b>	OEL STEL (ppm)	5 ppm
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
<b>Ontario</b>	OEL TWA (ppm)	2 ppm
<b>Prince Edward Island</b>	OEL STEL (ppm)	0.25 ppm
<b>Québec</b>	VECD (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
<b>Québec</b>	VECD (ppm)	5 ppm
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
<b>Québec</b>	VEMP (ppm)	2 ppm
<b>Saskatchewan</b>	OEL STEL (ppm)	5 ppm
<b>Saskatchewan</b>	OEL TWA (ppm)	2 ppm
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL (ppm)	5 ppm
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA (ppm)	5 ppm
<b>Phosphorus elemental (7723-14-0)</b>		
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (yellow)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (yellow)
<b>New Brunswick</b>	OEL TWA (ppm)	0.02 ppm (yellow)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (yellow)
<b>Cobalt (7440-48-4)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (dust and fume)
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>USA ACGIH</b>	ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
<b>USA ACGIH</b>	Biological Exposure Indices (BEI)	15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: end of shift at end of workweek (nonspecific)
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (dust and fume)
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup> (dust and fume)
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (dust and fume)
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	0.06 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	0.06 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	0.06 mg/m <sup>3</sup>

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	0.15 mg/m <sup>3</sup> (dust and fume)
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup> (dust and fume)
<b>Carbon (7440-44-0)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (dust)
<b>Silicon (7440-21-3)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable fraction)
<b>Mexico</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable dust)
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total dust) 3 mg/m <sup>3</sup> (respirable fraction)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (containing no Asbestos and <1% Crystalline silica-total dust)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	30 mppcf 10 mg/m <sup>3</sup>
<b>Tungsten (7440-33-7)</b>		
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter)
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (STEL) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Alberta</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>British Columbia</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter)
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Ontario</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Aluminum (7429-90-5)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (dust)
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (respirable particulate matter)

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>USA ACGIH</b>	ACGIH chemical category	Not Classifiable as a Human Carcinogen
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable dust)
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (dust)
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (respirable)
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (respirable particulate matter)
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal dust)
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (respirable particulate matter)
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (respirable particulate matter)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (metal-dust)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal-dust)
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (metal-dust)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal-dust)
<b>Ontario</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (respirable)
<b>Prince Edward Island</b>	OEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> (respirable particulate matter)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	20 mg/m <sup>3</sup> (dust)
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (dust)
<b>Tantalum (7440-25-7)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Mexico</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (dust)
<b>USA NIOSH</b>	NIOSH REL (STEL) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (dust)
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	2500 mg/m <sup>3</sup> (dust)
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (dust)
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (dust)
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal)
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (metal)
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (metal)
<b>Northwest Territories</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (metal)
<b>Québec</b>	VEMP (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (dust)
<b>Saskatchewan</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Saskatchewan</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Yukon</b>	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
<b>Yukon</b>	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Selenium (7782-49-2)</b>		
<b>USA ACGIH</b>	ACGIH TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (TWA) (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>USA IDLH</b>	US IDLH (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>British Columbia</b>	OEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>
<b>Manitoba</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>New Brunswick</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Newfoundland &amp; Labrador</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Nova Scotia</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL STEL (mg/m <sup>3</sup> )	0.6 mg/m <sup>3</sup>
<b>Nunavut</b>	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Northwest Territories</b>	OEL STEL (mg/m <sup>3</sup> )	0.6 mg/m <sup>3</sup>

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Northwest Territories	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
Ontario	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
Prince Edward Island	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
Québec	VEMP (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
Saskatchewan	OEL STEL (mg/m <sup>3</sup> )	0.6 mg/m <sup>3</sup>
Saskatchewan	OEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>

### 8.2. Exposure Controls

**Appropriate Engineering Controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Avoid dust production. Avoid creating or spreading dust. 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 no leakage from the equipment).

**Personal Protective Equipment:** Safety glasses. Gloves. Insufficient ventilation: wear respiratory protection. Protective clothing.



**Materials for Protective Clothing:** With molten material wear thermally protective clothing.

**Hand Protection:** Wear chemically resistant protective gloves. If material is hot, wear thermally resistant protective gloves.

**Eye and Face Protection:** Chemical goggles or face shield.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits. Wear approved mask.

**Thermal Hazard Protection:** If material is hot, wear thermally resistant protective gloves.

**Environmental Exposure Controls:** Do not allow the product to be released into the environment.

**Other Information:** When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Metallic
Odor	: Odorless
Odor Threshold	: Not applicable
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: 1300 °C (2372 °F)
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: 7.9 (Water = 1)
Solubility	: Insoluble in Water
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

### SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Stable at ambient temperature and under normal conditions of use.
- 10.2. Chemical Stability:** Stable under recommended handling and storage conditions (see Section 7).
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Incompatible materials.
- 10.5. Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Alkalis. Corrosive substances in contact with metals may produce flammable hydrogen gas. When molten: water.
- 10.6. Hazardous Decomposition Products:** None expected under normal conditions of use.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1. Information on Toxicological Effects - Product

**Acute Toxicity (Oral):** Not classified

**Acute Toxicity (Dermal):** Not classified

**Acute Toxicity (Inhalation):** Not classified

**LD50 and LC50 Data:** Not available

**Skin Corrosion/Irritation:** Not classified

**Eye Damage/Irritation:** Not classified.

**Respiratory or Skin Sensitization:** May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** May cause cancer.

**Specific Target Organ Toxicity (Repeated Exposure):** Causes damage to organs through prolonged or repeated exposure.

**Reproductive Toxicity:** Suspected of damaging fertility or the unborn child.

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Exposure may produce an allergic reaction. During processing, the most significant route of exposure is by the inhalation (breathing) of fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur.

**Symptoms/Injuries After Skin Contact:** Exposure may produce an allergic reaction. Contact with fumes or metal powder will irritate skin. Contact with hot, molten metal will cause thermal burns. Dust may cause irritation in skin folds or by contact in combination with tight clothing. Mechanical damage via flying particles and chipped slag is possible.

**Symptoms/Injuries After Eye Contact:** During metal processing, dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes. Mechanical damage via flying particles and chipped slag is possible.

**Symptoms/Injuries After Ingestion:** Ingestion is not considered a potential route of exposure.

**Chronic Symptoms:** May cause cancer. Causes damage to organs through prolonged or repeated exposure. Suspected of damaging fertility. Suspected of damaging the unborn child. Inhalation of iron oxide fumes undergoing decomposition may cause irritation and flu-like symptoms, otherwise iron oxide is not hazardous. Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion. Nickel: May cause a form of dermatitis known as nickel itch and intestinal irritation, which may cause disorders, convulsions and asphyxia. Manganese: Chronic exposure can cause inflammation of the lung tissue, scarring the lungs (pulmonary fibrosis). Chronic exposure to excessive manganese levels can lead to a variety of psychiatric and motor disturbances, termed manganism. Molybdenum: Chronic exposure to molybdenum compounds is suspected of causing cancer. Compounds are also known to cause irritation to the skin, eyes, and respiratory tract. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure. Chronic exposure to cobalt-containing hard metal (dust or fume) can result in a serious lung disease called "hard metal lung disease", which is a type of pneumoconiosis (lung fibrosis). Silicon: Can cause chronic bronchitis and narrowing of

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

the airways. Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Repeated exposure to tantalum alloys may cause fibrosis, chronic rhinitis and "hard metal pneumoconiosis". Overexposure to selenium (selenium poisoning) can cause central nervous system effects, and other intoxication effects. Chronic exposure can lead to anemia, pallor, liver/spleen damage, garlic breath, dermatitis, depression and other effects.

### 11.2. Information on Toxicological Effects - Ingredient(s)

#### LD50 and LC50 Data:

<b>Iron (7439-89-6)</b>	
LD50 Oral Rat	98.6 g/kg
<b>Chromium (7440-47-3)</b>	
LD50 Oral Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 5.41 mg/l/4h
<b>Nickel (7440-02-0)</b>	
LD50 Oral Rat	> 9000 mg/kg
LC50 Inhalation Rat	> 10.2 mg/l (Exposure time: 1 h)
<b>Manganese (7439-96-5)</b>	
LD50 Oral Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 5.14 mg/l/4h
<b>Molybdenum (7439-98-7)</b>	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
LC50 Inhalation Rat	> 3.92 mg/l/4h
<b>Sulfur dioxide (7446-09-5)</b>	
LC50 Inhalation Rat	2500 ppm/1h
ATE US/CA (gas)	1,250.00 ppmV/4h
<b>Phosphorus elemental (7723-14-0)</b>	
LD50 Oral Rat	3030 µg/kg
LD50 Dermal Rat	100 mg/kg
LC50 Inhalation Rat	4.3 mg/l (Exposure time: 1 h)
ATE US/CA (oral)	3.03 mg/kg body weight
ATE US/CA (vapors)	4.30 mg/l/4h
ATE US/CA (dust, mist)	0.05 mg/l/4h
<b>Cobalt (7440-48-4)</b>	
LD50 Oral Rat	6171 mg/kg
LC50 Inhalation Rat	> 10 mg/l (Exposure time: 1 h)
<b>Carbon (7440-44-0)</b>	
LD50 Oral Rat	> 10000 mg/kg
<b>Silicon (7440-21-3)</b>	
LD50 Oral Rat	3160 mg/kg
<b>Niobium (7440-03-1)</b>	
LD50 Oral Rat	> 10 g/kg
<b>Tantalum (7440-25-7)</b>	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
<b>Selenium (7782-49-2)</b>	
LD50 Oral Rat	6700 mg/kg
ATE US/CA (oral)	100.00 mg/kg body weight
ATE US/CA (dust, mist)	0.50 mg/l/4h
<b>Chromium (7440-47-3)</b>	
IARC Group	3
<b>Nickel (7440-02-0)</b>	

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>IARC Group</b>	2B
<b>National Toxicology Program (NTP) Status</b>	Reasonably anticipated to be Human Carcinogen.
<b>OSHA Hazard Communication Carcinogen List</b>	In OSHA Hazard Communication Carcinogen list.
<b>Sulfur dioxide (7446-09-5)</b>	
<b>IARC Group</b>	3
<b>Cobalt (7440-48-4)</b>	
<b>IARC Group</b>	2B
<b>National Toxicology Program (NTP) Status</b>	Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen.
<b>OSHA Hazard Communication Carcinogen List</b>	In OSHA Hazard Communication Carcinogen list.
<b>Selenium (7782-49-2)</b>	
<b>IARC Group</b>	3

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

<b>Nickel (7440-02-0)</b>	
<b>LC50 Fish 1</b>	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
<b>EC50 Daphnia 1</b>	121.6 µg/l (Exposure time: 48h - Species: Ceriodaphnia dubia [static])
<b>LC50 Fish 2</b>	15.3 mg/l
<b>EC50 Daphnia 2</b>	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
<b>EC50 Other Aquatic Organisms 2</b>	0.174 (0.174 - 0.311) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
<b>Manganese (7439-96-5)</b>	
<b>NOEC Chronic Fish</b>	3.6 mg/l (Exposure time: 96h; Species: Oncorhynchus mykiss)
<b>Copper (7440-50-8)</b>	
<b>LC50 Fish 1</b>	0.0068 - 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
<b>EC50 Daphnia 1</b>	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
<b>EC50 Other Aquatic Organisms 1</b>	0.0426 (0.0426 - 0.0535) mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
<b>LC50 Fish 2</b>	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
<b>EC50 Other Aquatic Organisms 2</b>	0.031 (0.031 - 0.054) mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
<b>Phosphorus elemental (7723-14-0)</b>	
<b>LC50 Fish 1</b>	33.2 mg/l Red Phosphorous (Exposure time: 96 h - Species Danio rerio [static])
<b>EC50 Daphnia 1</b>	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna)
<b>LC50 Fish 2</b>	0.001 - 0.004 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
<b>EC50 Daphnia 2</b>	0.025 - 0.037 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
<b>Cobalt (7440-48-4)</b>	
<b>LC50 Fish 1</b>	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])

### 12.2. Persistence and Degradability

<b>Copper (7440-50-8)</b>	
<b>Persistence and Degradability</b>	Not readily biodegradable.

### 12.3. Bioaccumulative Potential

<b>Sulfur dioxide (7446-09-5)</b>	
<b>BCF Fish 1</b>	(no bioaccumulation expected)
<b>Phosphorus elemental (7723-14-0)</b>	
<b>BCF Fish 1</b>	< 200
<b>Cobalt (7440-48-4)</b>	
<b>BCF Fish 1</b>	(no bioaccumulation)

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

### 12.4. Mobility in Soil

Not available

### 12.5. Other Adverse Effects

**Other Information:** Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste Treatment Methods:** Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

**Additional Information:** Recycle the material as far as possible.

**Ecology - Waste Materials:** Avoid release to the environment.

## SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

**14.1. In Accordance with DOT** Not regulated for transport

**14.2. In Accordance with IMDG** Not regulated for transport

**14.3. In Accordance with IATA** Not regulated for transport

**14.4. In Accordance with TDG** Not regulated for transport

## SECTION 15: REGULATORY INFORMATION

### 15.1. US Federal Regulations

<b>Stainless Steel and Alloys of Stainless Steel</b>	
<b>SARA Section 311/312 Hazard Classes</b>	Health hazard - Carcinogenicity Health hazard - Reproductive toxicity Health hazard - Specific target organ toxicity (single or repeated exposure) Health hazard - Respiratory or skin sensitization
<b>Iron (7439-89-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Chromium (7440-47-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>CERCLA RQ</b>	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
<b>SARA Section 313 - Emission Reporting</b>	1 %
<b>Nickel (7440-02-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>CERCLA RQ</b>	100 lb (only applicable if particles are < 100 µm)
<b>SARA Section 313 - Emission Reporting</b>	0.1 %
<b>Manganese (7439-96-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>SARA Section 313 - Emission Reporting</b>	1 %
<b>Molybdenum (7439-98-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Titanium (7440-32-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Copper (7440-50-8)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	



# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

<b>CERCLA RQ</b>	5000 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
<b>SARA Section 313 - Emission Reporting</b>	1 %
<b>Sulfur dioxide (7446-09-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302	
<b>SARA Section 302 Threshold Planning Quantity (TPQ)</b>	500 lb
<b>Phosphorus elemental (7723-14-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Subject to reporting requirements of United States SARA Section 313	
<b>CERCLA RQ</b>	1 lb
<b>SARA Section 302 Threshold Planning Quantity (TPQ)</b>	100 lb (this material is a reactive solid, the TPQ does not default to 10000 pounds for non-powder, non-molten, non-solution form)
<b>SARA Section 313 - Emission Reporting</b>	1 % (yellow or white)
<b>Cobalt (7440-48-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>SARA Section 313 - Emission Reporting</b>	0.1 %
<b>Carbon (7440-44-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Silicon (7440-21-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Tungsten (7440-33-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Niobium (7440-03-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Aluminum (7429-90-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>SARA Section 313 - Emission Reporting</b>	1 % (dust or fume only)
<b>Tantalum (7440-25-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Selenium (7782-49-2)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>CERCLA RQ</b>	100 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
<b>SARA Section 313 - Emission Reporting</b>	1 %

### 15.2. US State Regulations

<b>Nickel (7440-02-0)</b>	
<b>U.S. - California - Proposition 65 - Carcinogens List</b>	WARNING: This product contains chemicals known to the State of California to cause cancer.
<b>Sulfur dioxide (7446-09-5)</b>	
<b>U.S. - California - Proposition 65 - Developmental Toxicity</b>	WARNING: This product contains chemicals known to the State of California to cause birth defects.
<b>Cobalt (7440-48-4)</b>	

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

### U.S. - California - Proposition 65 - Carcinogens List

WARNING: This product contains chemicals known to the State of California to cause cancer.

### Chromium (7440-47-3)

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

### Nickel (7440-02-0)

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

### Manganese (7439-96-5)

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

### Molybdenum (7439-98-7)

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

### Titanium (7440-32-6)

U.S. - New Jersey - Right to Know Hazardous Substance List

### Copper (7440-50-8)

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

### Sulfur dioxide (7446-09-5)

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

### 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) - Environmental Hazard List  
U.S. - Pennsylvania - RTK (Right to Know) List

### Cobalt (7440-48-4)

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

### Silicon (7440-21-3)

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

### Tungsten (7440-33-7)

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

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

### **Aluminum (7429-90-5)**

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

### **Tantalum (7440-25-7)**

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

### **Selenium (7782-49-2)**

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

## **15.3. Canadian Regulations**

### **Iron (7439-89-6)**

Listed on the Canadian DSL (Domestic Substances List)

### **Chromium (7440-47-3)**

Listed on the Canadian DSL (Domestic Substances List)

### **Nickel (7440-02-0)**

Listed on the Canadian DSL (Domestic Substances List)

### **Manganese (7439-96-5)**

Listed on the Canadian DSL (Domestic Substances List)

### **Molybdenum (7439-98-7)**

Listed on the Canadian DSL (Domestic Substances List)

### **Titanium (7440-32-6)**

Listed on the Canadian DSL (Domestic Substances List)

### **Copper (7440-50-8)**

Listed on the Canadian DSL (Domestic Substances List)

### **Sulfur dioxide (7446-09-5)**

Listed on the Canadian DSL (Domestic Substances List)

### **Phosphorus elemental (7723-14-0)**

Listed on the Canadian DSL (Domestic Substances List)

### **Cobalt (7440-48-4)**

Listed on the Canadian DSL (Domestic Substances List)

### **Carbon (7440-44-0)**

Listed on the Canadian DSL (Domestic Substances List)

### **Silicon (7440-21-3)**

Listed on the Canadian DSL (Domestic Substances List)

### **Tungsten (7440-33-7)**

Listed on the Canadian DSL (Domestic Substances List)

### **Niobium (7440-03-1)**

Listed on the Canadian DSL (Domestic Substances List)

### **Aluminum (7429-90-5)**

Listed on the Canadian DSL (Domestic Substances List)

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

### Tantalum (7440-25-7)

Listed on the Canadian DSL (Domestic Substances List)

### Selenium (7782-49-2)

Listed on the Canadian DSL (Domestic Substances List)

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 09/20/2018

### Revision

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

### GHS Full Text Phrases:

Acute Tox. 1 (Oral)	Acute toxicity (oral) Category 1
Acute Tox. 2 (Dermal)	Acute toxicity (dermal) Category 2
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Aquatic Chronic 4	Hazardous to the aquatic environment - Chronic Hazard Category 4
Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Sol. 1	Flammable solids Category 1
Flam. Sol. 2	Flammable solids Category 2
Press. Gas (Liq.)	Gases under pressure Liquefied gas
Pyr. Sol. 1	Pyrophoric solids Category 1
Repr. 2	Reproductive toxicity Category 2
Resp. Sens. 1B	Respiratory sensitization, Category 1B
Self-heat. 1	Self-heating substances and mixtures Category 1
Self-heat. 2	Self-heating substances and mixtures Category 2
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Sens. 1	Skin sensitization, Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
Water-react. 2	Substances and mixtures which in contact with water emit flammable gases Category 2
H228	Flammable solid
H250	Catches fire spontaneously if exposed to air
H251	Self-heating; may catch fire
H252	Self-heating in large quantities; may catch fire
H261	In contact with water releases flammable gas
H280	Contains gas under pressure; may explode if heated
H300	Fatal if swallowed

# Stainless Steel and Alloys of Stainless Steel

## Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

H301	Toxic if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H350	May cause cancer
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H412	Harmful to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

*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.*

NA GHS SDS 2015 (Can, US, Mex)