



# Steel Mill Electric Arc Furnace Dust

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 04/10/2018

Revision date: 04/10/2018

Version: 1.0

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : Steel Mill Electric Arc Furnace Dust

#### 1.2. Recommended use and restrictions on use

Recommended use : Industrial use  
Restrictions on use : None known

#### 1.3. Supplier

Optimus Steel, LLC  
P.O. Box 3869  
Beaumont, TX 77704

#### 1.4. Emergency telephone number

Emergency number : 800-424-9300 CHEMTREC

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Acute Tox. 3 (Oral)	H301	Toxic if swallowed
Acute Tox. 3 (Dermal)	H311	Toxic in contact with skin
Acute Tox. 3 (Inhalation:gas)	H331	Toxic if inhaled
Skin Corr. 1A	H314	Causes severe skin burns and eye damage
Resp. Sens. 1	H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
Skin Sens. 1	H317	May cause an allergic skin reaction
Muta. 2	H341	Suspected of causing genetic defects
Carc. 1A	H350	May cause cancer
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure

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

#### 2.2. GHS Label elements, including precautionary statements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled  
H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled  
H341 - Suspected of causing genetic defects  
H350 - May cause cancer  
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P260 - Do not breathe dust, fume, vapors.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing must not be allowed out of the workplace  
P280 - Wear eye protection, face protection, protective clothing, protective gloves.  
P301+P310 - If swallowed: Immediately call a POISON CENTER  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact

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lenses, if present and easy to do. Continue rinsing  
 P310 - Immediately call a POISON CENTER  
 P330 - Rinse mouth.  
 P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
 P342+P311 - If experiencing respiratory symptoms: Call a doctor  
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
 P405 - Store locked up.  
 P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

### 2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : Inhalation of fumes may cause metal fume fever.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Iron oxide (Fe <sub>2</sub> O <sub>3</sub> )	(CAS-No.) 1309-37-1	0 - 35	Not classified
Calcium oxide	(CAS-No.) 1305-78-8	0 - 35	Skin Corr. 1A, H314
Zinc oxide (ZnO)	(CAS-No.) 1314-13-2	0 - 25	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Silica, cristobalite	(CAS-No.) 14464-46-1	0 - 15	Carc. 1A, H350
Magnesium oxide (MgO)	(CAS-No.) 1309-48-4	5 - 10	Not classified
Manganese	(CAS-No.) 7439-96-5	5 - 10	Not classified
Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> )	(CAS-No.) 1344-28-1	0 - 5	Not classified
Chromium	(CAS-No.) 7440-47-3	0 - 5	Not classified
Tin	(CAS-No.) 7440-31-5	0 - 5	Acute Tox. 4 (Oral), H302
Molybdenum	(CAS-No.) 7439-98-7	0 - 5	Not classified
Phosphorus oxide (P <sub>2</sub> O <sub>5</sub> )	(CAS-No.) 1314-56-3	0 - 5	Skin Corr. 1A, H314
Sulfur dioxide	(CAS-No.) 7446-09-5	0 - 5	Acute Tox. 3 (Inhalation), H331 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314
Fluorine	(CAS-No.) 7782-41-4	0 - 5	Ox. Gas 1, H270 Acute Tox. 1 (Inhalation:gas), H330 Skin Corr. 1A, H314
Titanium dioxide	(CAS-No.) 13463-67-7	0 - 5	Not classified
Nickel	(CAS-No.) 7440-02-0	0 - 5	Skin Sens. 1, H317 Carc. 1B, H350 STOT RE 1, H372
Copper	(CAS-No.) 7440-50-8	0 - 5	Not classified
Lead	(CAS-No.) 7439-92-1	0 - 5	Carc. 1B, H350
Silver	(CAS-No.) 7440-22-4	0 - 5	Aquatic Acute 1, H400
Vanadium oxide (V <sub>2</sub> O <sub>5</sub> )	(CAS-No.) 1314-62-1	0 - 5	Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 4 (Inhalation:dust,mist), H332 Muta. 2, H341 Carc. 2, H351 STOT SE 3, H335 STOT RE 1, H372 Aquatic Chronic 2, H411
Arsenic	(CAS-No.) 7440-38-2	0 - 5	Acute Tox. 2 (Oral), H300 Acute Tox. 3 (Inhalation), H331 Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Cobalt	(CAS-No.) 7440-48-4	0 - 5	Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 Aquatic Chronic 4, H413
Potassium hydroxide	(CAS-No.) 1310-58-3	0 - 5	Acute Tox. 3 (Oral), H301 Skin Corr. 1A, H314
Barium	(CAS-No.) 7440-39-3	0 - 5	Acute Tox. 3 (Oral), H301

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Name	Product identifier	%	GHS-US classification
Cadmium oxide (CdO)	(CAS-No.) 1306-19-0	0 - 5	Acute Tox. 3 (Oral), H301 Acute Tox. 2 (Inhalation:dust,mist), H330 Muta. 2, H341 Carc. 1A, H350 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Tungsten	(CAS-No.) 7440-33-7	0 - 5	Not classified
Mercury	(CAS-No.) 7439-97-6	0 - 5	Acute Tox. 2 (Inhalation:dust,mist), H330 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Selenium	(CAS-No.) 7782-49-2	0 - 5	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Inhalation:dust,mist), H331 STOT RE 2, H373 Aquatic Chronic 4, H413

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

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. Call a physician immediately.
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.
First-aid measures after skin contact	: Immediately call a poison center or doctor/physician. Remove/Take off immediately all contaminated clothing. Wash immediately with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: Immediately call a poison center or doctor/physician. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist if irritation persists.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

#### 4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.
Symptoms/effects	: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/effects after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Swallowing a small quantity of this material will result in serious health hazard. Burns.
Chronic symptoms	: May cause cancer. May cause heritable genetic damage.

#### 4.3. Immediate medical attention and special treatment, if necessary

Not applicable.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Carbon dioxide. Sand. Water spray. Dry powder. Foam.
Unsuitable extinguishing media	: Do not use a heavy water stream.

#### 5.2. Specific hazards arising from the chemical

Reactivity	: Corrosive vapors.
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#### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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### SECTION 6: Accidental release measures

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

##### 6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapors/spray. Evacuate unnecessary personnel. Do not get in eyes, on skin, or on clothing.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area.

#### 6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Notify authorities if product enters sewers or public waters.

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

Methods for cleaning up : On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials. Notify authorities if product enters sewers or public waters. In case of large spillages: Shovel or sweep up and put in a closed container for disposal. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal.

Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe dust, fume. Avoid contact during pregnancy/while nursing. Use personal protective equipment as required. Use only outdoors or in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Do not handle until all safety precautions have been read and understood. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Obtain special instructions before use.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Separate work clothes from street clothes. Launder separately. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace.

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

Technical measures : Comply with applicable regulations.

Storage conditions : Keep only in original container. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Iron oxide (Fe <sub>2</sub> O <sub>3</sub> ) (1309-37-1)		
ACGIH	Local name	Iron oxide (Fe O )
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (respirable particulate matter)
ACGIH	Remark (ACGIH)	Pneumoconiosis
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (fume) 15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)

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<b>Calcium oxide (1305-78-8)</b>		
ACGIH	Local name	Calcium oxide
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
ACGIH	Remark (ACGIH)	URT irr
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Zinc oxide (ZnO) (1314-13-2)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> (respirable particulate matter)
ACGIH	ACGIH STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (respirable particulate matter)
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (fume) 15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)
<b>Silica, cristobalite (14464-46-1)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (respirable particulate matter)
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	50 µg/m <sup>3</sup>
<b>Manganese (7439-96-5)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup> (respirable fraction)
OSHA	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup> (fume)
<b>Magnesium oxide (MgO) (1309-48-4)</b>		
ACGIH	Local name	Magnesium oxide
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup> (inhalable particulate matter)
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (fume, total particulate)
<b>Tin (7440-31-5)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
<b>Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) (1344-28-1)</b>		
OSHA	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>Chromium (7440-47-3)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>Phosphorus oxide (P<sub>2</sub>O<sub>5</sub>) (1314-56-3)</b>		
Not applicable		
<b>Sulfur dioxide (7446-09-5)</b>		
ACGIH	ACGIH STEL (ppm)	0.25 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	5 ppm
<b>Calcium fluoride (CaF<sub>2</sub>) (7789-75-5)</b>		
Not applicable		
<b>Fluorine (7782-41-4)</b>		
ACGIH	ACGIH TWA (ppm)	1 ppm
ACGIH	ACGIH STEL (ppm)	2 ppm
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (ppm)	0.1 ppm
<b>Molybdenum (7439-98-7)</b>		
ACGIH	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)

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<b>Silver (7440-22-4)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (dust and fume)
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	0.01 mg/m <sup>3</sup>
<b>Vanadium oxide (V2O5) (1314-62-1)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup> (inhalable particulate matter)
<b>Arsenic (7440-38-2)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.01 mg/m <sup>3</sup>
<b>Cobalt (7440-48-4)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.02 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> (dust and fume)
<b>Titanium dioxide (13463-67-7)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (total dust)
<b>Potassium hydroxide (1310-58-3)</b>		
ACGIH	ACGIH Ceiling (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
<b>Barium (7440-39-3)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
<b>Cadmium oxide (CdO) (1306-19-0)</b>		
Not applicable		
<b>Lead (7439-92-1)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.05 mg/m <sup>3</sup>
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	50 µg/m <sup>3</sup>
<b>Tungsten (7440-33-7)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (respirable particulate matter)
<b>Mercury (7439-97-6)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup>
OSHA	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>
<b>Nickel (7440-02-0)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (inhalable particulate matter)
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
<b>Selenium (7782-49-2)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup>
<b>Copper (7440-50-8)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dust and mist)
OSHA	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)

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Avoid dust formation. Ensure good ventilation of the work station.  
Environmental exposure controls : Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

#### Personal protective equipment:

Avoid all unnecessary exposure.

#### Hand protection:

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Chemically resistant protective gloves

### Eye protection:

Chemical goggles or face shield

### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

In case of inadequate ventilation wear respiratory protection.

### Other information:

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder. granular.
Color	: brown
Odor	: odorless
Odor threshold	: No data available
pH	: No data available
Melting point	: >= 2800 °F
Freezing point	: Not applicable
Boiling point	: >=
Flash point	: 5000 °F
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: Not applicable
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Corrosive vapors.

### 10.2. Chemical stability

Not established.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Extremely high or low temperatures.

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### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Thermal decomposition generates : Corrosive vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin. Inhalation:gas: Toxic if inhaled.

Steel Mill Electric Arc Furnace Dust	
ATE US (oral)	92 mg/kg body weight
ATE US (dermal)	1000 mg/kg body weight
ATE US (gases)	1533 ppmV/4h
Iron oxide (Fe <sub>2</sub> O <sub>3</sub> ) (1309-37-1)	
LD50 oral rat	> 10000 mg/kg
Calcium oxide (1305-78-8)	
LD50 oral rat	> 2000 mg/kg
Zinc oxide (ZnO) (1314-13-2)	
LD50 oral rat	> 5000 mg/kg
Manganese (7439-96-5)	
LD50 oral rat	9 g/kg
ATE US (oral)	9000 mg/kg body weight
Magnesium oxide (MgO) (1309-48-4)	
LD50 oral rat	3870 mg/kg
ATE US (oral)	3870 mg/kg body weight
Tin (7440-31-5)	
LD50 oral rat	700 mg/kg
ATE US (oral)	700 mg/kg body weight
Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> ) (1344-28-1)	
LD50 oral rat	> 5000 mg/kg
Phosphorus oxide (P <sub>2</sub> O <sub>5</sub> ) (1314-56-3)	
LC50 inhalation rat (mg/l)	1217 mg/m <sup>3</sup> (Exposure time: 1 h)
Sulfur dioxide (7446-09-5)	
LC50 inhalation rat (ppm)	2500 ppm/1h
ATE US (gases)	1250 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h
Fluorine (7782-41-4)	
LC50 inhalation rat (ppm)	185 ppm/1h
ATE US (gases)	92.5 ppmV/4h
Silver (7440-22-4)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg
Vanadium oxide (V <sub>2</sub> O <sub>5</sub> ) (1314-62-1)	
LD50 oral rat	10 mg/kg
LD50 dermal rabbit	50 mg/kg
LC50 inhalation rat (mg/l)	4.29 mg/l/4h
ATE US (oral)	10 mg/kg body weight
ATE US (dermal)	50 mg/kg body weight
ATE US (vapors)	4.29 mg/l/4h
ATE US (dust, mist)	4.29 mg/l/4h



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<b>Arsenic (7440-38-2)</b>	
LD50 oral rat	15 mg/kg
ATE US (oral)	15 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h
<b>Cobalt (7440-48-4)</b>	
LD50 oral rat	6171 mg/kg
LC50 inhalation rat (mg/l)	> 10 mg/l (Exposure time: 1 h)
ATE US (oral)	6171 mg/kg body weight
<b>Titanium dioxide (13463-67-7)</b>	
LD50 oral rat	> 10000 mg/kg
<b>Potassium hydroxide (1310-58-3)</b>	
LD50 oral rat	284 mg/kg
ATE US (oral)	284 mg/kg body weight
<b>Barium (7440-39-3)</b>	
LD50 oral rat	132 mg/kg
ATE US (oral)	132 mg/kg body weight
<b>Cadmium oxide (CdO) (1306-19-0)</b>	
LD50 oral rat	72 mg/kg
LC50 inhalation rat (mg/l)	780 mg/m <sup>3</sup> (Exposure time: 10 min)
ATE US (oral)	72 mg/kg body weight
ATE US (dust, mist)	0.05 mg/l/4h
<b>Mercury (7439-97-6)</b>	
ATE US (dust, mist)	0.05 mg/l/4h
<b>Nickel (7440-02-0)</b>	
LD50 oral rat	> 9000 mg/kg
LC50 inhalation rat (mg/l)	> 10.2 mg/l (Exposure time: 1 h)
<b>Selenium (7782-49-2)</b>	
LD50 oral rat	6700 mg/kg
ATE US (oral)	100 mg/kg body weight
ATE US (dust, mist)	0.5 mg/l/4h
Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious 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	: Suspected of causing genetic defects.
Carcinogenicity	: May cause cancer.
<b>Iron oxide (Fe<sub>2</sub>O<sub>3</sub>) (1309-37-1)</b>	
IARC group	3 - Not classifiable
<b>Silica, cristobalite (14464-46-1)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes
<b>Chromium (7440-47-3)</b>	
IARC group	3 - Not classifiable
<b>Sulfur dioxide (7446-09-5)</b>	
IARC group	3 - Not classifiable

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<b>Vanadium oxide (V2O5) (1314-62-1)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Evidence of Carcinogenicity
In OSHA Hazard Communication Carcinogen list	Yes
<b>Arsenic (7440-38-2)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes
<b>Cobalt (7440-48-4)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes
<b>Titanium dioxide (13463-67-7)</b>	
IARC group	2B - Possibly carcinogenic to humans
In OSHA Hazard Communication Carcinogen list	Yes
<b>Cadmium oxide (CdO) (1306-19-0)</b>	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes
<b>Lead (7439-92-1)</b>	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes
<b>Mercury (7439-97-6)</b>	
IARC group	3 - Not classifiable
<b>Nickel (7440-02-0)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
In OSHA Hazard Communication Carcinogen list	Yes
<b>Selenium (7782-49-2)</b>	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified  
 Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

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Potential Adverse human health effects and symptoms	: Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.
Symptoms/effects	: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/effects after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Swallowing a small quantity of this material will result in serious health hazard. Burns.
Chronic symptoms	: May cause cancer. May cause heritable genetic damage.
Other information	: Exposure to dust or fumes from some metal including iron, zinc, manganese, chromium, cobalt, and copper can produce a condition known as metal fume fever.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

##### Calcium oxide (1305-78-8)

LC50 fish 1	1070 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])
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##### Silver (7440-22-4)

LC50 fish 1	0.00155 - 0.00293 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
-------------	--

EC50 Daphnia 1	0.00024 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
----------------	--

LC50 fish 2	0.0062 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
-------------	---

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

LC50 fish 1	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
-------------	--

##### Lead (7439-92-1)

LC50 fish 1	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
-------------	--

EC50 Daphnia 1	600 µg/l (Exposure time: 48 h - Species: water flea)
----------------	--

LC50 fish 2	1.17 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
-------------	---

##### Mercury (7439-97-6)

LC50 fish 1	0.5 mg/l (Exposure time: 96 h - Species: Cyprinus carpio)
-------------	---

LC50 fish 2	0.16 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
-------------	--

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

LC50 fish 1	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
-------------	---

EC50 Daphnia 1	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
----------------	---

LC50 fish 2	1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
-------------	---

EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
----------------	--

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

LC50 fish 1	0.0068 - 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
-------------	---

EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
----------------	---

LC50 fish 2	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
-------------	--

#### 12.2. Persistence and degradability

##### Steel Mill Electric Arc Furnace Dust

Persistence and degradability	Not established.
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### 12.3. Bioaccumulative potential

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Bioaccumulative potential	Not established.
Calcium oxide (1305-78-8)	
BCF fish 1	(no bioaccumulation)
Sulfur dioxide (7446-09-5)	
BCF fish 1	(no bioaccumulation expected)
Cobalt (7440-48-4)	
BCF fish 1	(no bioaccumulation)
Potassium hydroxide (1310-58-3)	
Log Pow	0.65

### 12.4. Mobility in soil

Steel Mill Electric Arc Furnace Dust	
Ecology - soil	Not established.

### 12.5. Other adverse effects

Effect on global warming Not established

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.  
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Transport document description : RQ, UN1759 Corrosive solids, n.o.s. (Calcium Oxide), 8, II  
UN-No.(DOT) : UN1759  
Proper Shipping Name (DOT) : Corrosive solids, n.o.s.  
Calcium Oxide  
Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136  
Packing group (DOT) : II - Medium Danger

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Hazard labels (DOT) : 8 - Corrosive



DOT Packaging Non Bulk (49 CFR 173.xxx) : 212

DOT Packaging Bulk (49 CFR 173.xxx) : 240

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102) : 128 - Regardless of the provisions of §172.101(c)(12), aluminum smelting by-products and aluminum remelting by-products described under this entry, meeting the definition of Class 8, Packing Group II and III may be classed as a Division 4.3 material and transported under this entry. The presence of a Class 8 hazard must be communicated as required by this Part for subsidiary hazards

IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).

IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.

IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.

T3 - 2.65 178.274(d)(2) Normal..... 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 15 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Emergency Response Guide (ERG) Number : 154

Other information : No supplementary information available.

### Transportation of Dangerous Goods

Transport document description : UN1759 CORROSIVE SOLID, N.O.S. (Calcium Oxide), 8, II

UN-No. (TDG) : UN1759

Proper Shipping Name (Transportation of Dangerous Goods) : CORROSIVE SOLID, N.O.S.

TDG Primary Hazard Classes : 8 - Class 8 - Corrosives

Packing group : II - Medium Danger

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**TDG Special Provisions** : 16 - (1) The technical name of at least one of the most dangerous substances that predominantly contributes to the hazard or hazards posed by the dangerous goods must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(ii)(A) of Part 3 (Documentation). The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4 (Dangerous Goods Safety Marks). (2) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical name: (a)UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S.; (b)UN1851, MEDICINE, LIQUID, TOXIC, N.O.S.; (c)UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S.; (d)UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S. or (e)UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the "Food and Drugs Act". (3) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a small means of containment: (a)UN2814, INFECTIOUS SUBSTANCE, AFFECTING HUMANS; or (b)UN2900, INFECTIOUS SUBSTANCE, AFFECTING ANIMALS. SOR/2014-306

Explosive Limit and Limited Quantity Index : 1 kg  
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 15 kg

### Transport by sea

Transport document description (IMDG) : UN 1759 CORROSIVE SOLID, N.O.S. (Calcium Oxide), 8, III  
UN-No. (IMDG) : 1759  
Proper Shipping Name (IMDG) : CORROSIVE SOLID, N.O.S.  
Class (IMDG) : 8 - Corrosive substances  
Packing group (IMDG) : III - substances presenting low danger

### Air transport

Transport document description (IATA) : UN 1759 Corrosive solid, n.o.s. (Calcium Oxide), 8, II  
UN-No. (IATA) : 1759  
Proper Shipping Name (IATA) : Corrosive solid, n.o.s.  
Class (IATA) : 8 - Corrosives  
Packing group (IATA) : II - Medium Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Iron oxide (Fe<sub>2</sub>O<sub>3</sub>) (1309-37-1)

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

#### Calcium oxide (1305-78-8)

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

#### Zinc oxide (ZnO) (1314-13-2)

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

#### Silica, cristobalite (14464-46-1)

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

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

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Subject to reporting requirements of United States SARA Section 313

#### Magnesium oxide (MgO) (1309-48-4)

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

#### Tin (7440-31-5)

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

#### Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) (1344-28-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Subject to reporting requirements of United States SARA Section 313

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<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	
CERCLA RQ	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>Phosphorus oxide (P2O5) (1314-56-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Sulfur dioxide (7446-09-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Section 302 EPCRA Reportable Quantity (RQ)	500 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
<b>Calcium fluoride (CaF2) (7789-75-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Fluorine (7782-41-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	10 lb
Section 302 EPCRA Reportable Quantity (RQ)	10 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
<b>Molybdenum (7439-98-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Silver (7440-22-4)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1000 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>Vanadium oxide (V2O5) (1314-62-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	1000 lb
Section 302 EPCRA Reportable Quantity (RQ)	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	100 - 10000 lb
<b>Arsenic (7440-38-2)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	1 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>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>Titanium dioxide (13463-67-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Potassium hydroxide (1310-58-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	1000 lb
<b>Barium (7440-39-3)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
<b>Cadmium oxide (CdO) (1306-19-0)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Section 302 EPCRA Reportable Quantity (RQ)	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	100 - 10000 lb

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<b>Lead (7439-92-1)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	10 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>Tungsten (7440-33-7)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Mercury (7439-97-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
EPA TSCA Regulatory Flag	S - S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.
CERCLA RQ	1 lb
<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	
CERCLA RQ	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>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	
CERCLA RQ	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>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	
CERCLA RQ	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

### 15.2. International regulations

#### CANADA

<b>Iron oxide (Fe2O3) (1309-37-1)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Calcium oxide (1305-78-8)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Zinc oxide (ZnO) (1314-13-2)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Silica, cristobalite (14464-46-1)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Manganese (7439-96-5)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Magnesium oxide (MgO) (1309-48-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Tin (7440-31-5)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Aluminum oxide (Al2O3) (1344-28-1)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Chromium (7440-47-3)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Phosphorus oxide (P2O5) (1314-56-3)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Sulfur dioxide (7446-09-5)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
Toxic Substance (CEPA – Schedule I)	Yes



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<b>Calcium fluoride (CaF<sub>2</sub>) (7789-75-5)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Fluorine (7782-41-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Molybdenum (7439-98-7)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Silver (7440-22-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Vanadium oxide (V<sub>2</sub>O<sub>5</sub>) (1314-62-1)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
Toxic Substance (CEPA – Schedule I)	Yes
<b>Arsenic (7440-38-2)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Cobalt (7440-48-4)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Titanium dioxide (13463-67-7)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Potassium hydroxide (1310-58-3)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Barium (7440-39-3)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Cadmium oxide (CdO) (1306-19-0)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Lead (7439-92-1)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
Toxic Substance (CEPA – Schedule I)	Yes
<b>Tungsten (7440-33-7)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Mercury (7439-97-6)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
Toxic Substance (CEPA – Schedule I)	Yes
<b>Nickel (7440-02-0)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Selenium (7782-49-2)</b>	
Listed on the Canadian DSL (Domestic Substances List)	
<b>Copper (7440-50-8)</b>	
Listed on the Canadian DSL (Domestic Substances List)	

### EU-Regulations

<b>Iron oxide (Fe<sub>2</sub>O<sub>3</sub>) (1309-37-1)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Calcium oxide (1305-78-8)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Zinc oxide (ZnO) (1314-13-2)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Silica, cristobalite (14464-46-1)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Manganese (7439-96-5)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	
<b>Magnesium oxide (MgO) (1309-48-4)</b>	
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)	

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<b>Tin (7440-31-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) (1344-28-1)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Chromium (7440-47-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Phosphorus oxide (P<sub>2</sub>O<sub>5</sub>) (1314-56-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Sulfur dioxide (7446-09-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Calcium fluoride (CaF<sub>2</sub>) (7789-75-5)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Fluorine (7782-41-4)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Molybdenum (7439-98-7)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Silver (7440-22-4)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Vanadium oxide (V<sub>2</sub>O<sub>5</sub>) (1314-62-1)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Arsenic (7440-38-2)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Cobalt (7440-48-4)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Titanium dioxide (13463-67-7)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Potassium hydroxide (1310-58-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Barium (7440-39-3)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Cadmium oxide (CdO) (1306-19-0)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Lead (7439-92-1)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Tungsten (7440-33-7)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Mercury (7439-97-6)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Nickel (7440-02-0)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Selenium (7782-49-2)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
<b>Copper (7440-50-8)</b>
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### National regulations

<b>Steel Mill Electric Arc Furnace Dust</b>
All chemical substances in this product are listed in the EPA (Environment Protection Agency) TSCA (Toxic Substances Control Act) Inventory

# Steel Mill Electric Arc Furnace Dust

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Iron oxide (Fe<sub>2</sub>O<sub>3</sub>) (1309-37-1)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Calcium oxide (1305-78-8)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Zinc oxide (ZnO) (1314-13-2)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Silica, cristobalite (14464-46-1)

Listed on IARC (International Agency for Research on Cancer)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed as carcinogen on NTP (National Toxicology Program)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Manganese (7439-96-5)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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### Magnesium oxide (MgO) (1309-48-4)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Tin (7440-31-5)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) (1344-28-1)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Chromium (7440-47-3)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Phosphorus oxide (P<sub>2</sub>O<sub>5</sub>) (1314-56-3)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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### Calcium fluoride (CaF<sub>2</sub>) (7789-75-5)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Fluorine (7782-41-4)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Molybdenum (7439-98-7)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Silver (7440-22-4)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Vanadium oxide (V<sub>2</sub>O<sub>5</sub>) (1314-62-1)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Poisonous and Deleterious Substances Control Law  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Arsenic (7440-38-2)

Listed on IARC (International Agency for Research on Cancer)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Poisonous and Deleterious Substances Control Law  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed as carcinogen on NTP (National Toxicology Program)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Titanium dioxide (13463-67-7)**

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Potassium hydroxide (1310-58-3)**

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Poisonous and Deleterious Substances Control Law  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Barium (7440-39-3)**

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### **Cadmium oxide (CdO) (1306-19-0)**

Listed on IARC (International Agency for Research on Cancer)  
Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Poisonous and Deleterious Substances Control Law  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed as carcinogen on NTP (National Toxicology Program)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

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### Lead (7439-92-1)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Tungsten (7440-33-7)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Mercury (7439-97-6)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Poisonous and Deleterious Substances Control Law  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Nickel (7440-02-0)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Selenium (7782-49-2)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Japanese Poisonous and Deleterious Substances Control Law  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### Copper (7440-50-8)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on CICR (Turkish Inventory and Control of Chemicals)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

### 15.3. US State regulations

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<b>Sulfur dioxide (7446-09-5)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
No	Yes	No	No		10000 µg/day
<b>Vanadium oxide (V2O5) (1314-62-1)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		
<b>Arsenic (7440-38-2)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
No	No	No	No	0.06 µg/day	
<b>Cobalt (7440-48-4)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		
<b>Titanium dioxide (13463-67-7)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		
<b>Lead (7439-92-1)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes	15 µg/day	0.5 µg/day
<b>Mercury (7439-97-6)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
No	Yes	No	No		
<b>Nickel (7440-02-0)</b>					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		



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### Iron oxide (Fe<sub>2</sub>O<sub>3</sub>) (1309-37-1)

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

### Calcium oxide (1305-78-8)

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

### Zinc oxide (ZnO) (1314-13-2)

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

### Silica, cristobalite (14464-46-1)

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

### 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

### Magnesium oxide (MgO) (1309-48-4)

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

### Tin (7440-31-5)

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

### Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) (1344-28-1)

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

### 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

### Phosphorus oxide (P<sub>2</sub>O<sub>5</sub>) (1314-56-3)

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) 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

### Fluorine (7782-41-4)

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

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### **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

### **Silver (7440-22-4)**

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

### **Vanadium oxide (V2O5) (1314-62-1)**

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

### **Arsenic (7440-38-2)**

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) - Special Hazardous Substances  
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

### **Titanium dioxide (13463-67-7)**

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

### **Potassium hydroxide (1310-58-3)**

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) List

### **Barium (7440-39-3)**

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) List

### **Cadmium oxide (CdO) (1306-19-0)**

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

### **Lead (7439-92-1)**

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

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

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

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### Mercury (7439-97-6)

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

### 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

### 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

### 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

## SECTION 16: Other information

Revision date : 04/10/2018

Other information : **DISCLAIMER OF LIABILITY** The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

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### Full text of H-phrases:

Acute Tox. 1 (Dermal)	Acute toxicity (dermal) Category 1
Acute Tox. 1 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 1
Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral) Category 2
Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhalation) Category 3
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
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 4	Hazardous to the aquatic environment - Chronic Hazard Category 4
Carc. 1A	Carcinogenicity Category 1A
Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Muta. 2	Germ cell mutagenicity Category 2
Ox. Gas 1	Oxidizing gases Category 1
Resp. Sens. 1	Respiratory sensitization, Category 1
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
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H270	May cause or intensify fire; oxidizer
H300	Fatal if swallowed
H301	Toxic if swallowed
H302	Harmful if swallowed
H310	Fatal in contact with skin
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H330	Fatal if inhaled
H331	Toxic if inhaled
H332	Harmful if inhaled
H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H341	Suspected of causing genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure

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H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

SDS US (GHS HazCom 2012)

*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*