



# Safety Data Sheet (SDS)

Alloy Cast Products, Inc.

## Cobalt Alloy

SDS Number: 672

Revision Date: 7/7/2016

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### 1 PRODUCT AND COMPANY IDENTIFICATION

#### Manufacturer

Alloy Cast Products, Inc.  
700 Swenson Drive  
Kenilworth, NJ 07033

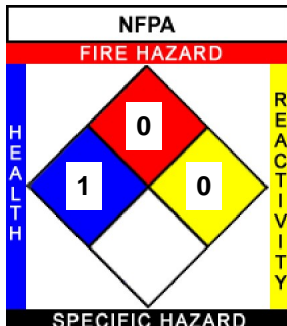
**Contact:** Alloy Cast Products, Inc.  
**Phone:** (908) 245-2255  
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**Email:** sales@alloycastproducts.com  
**Web:** www.alloycastproducts.com

**Product Name:** Cobalt Alloy  
**Revision Date:** 7/7/2016  
**Version:** 1  
**SDS Number:** 672  
**Common Name:** Cobalt Alloy  
**CAS Number:** MIXTURE  
**Chemical Family:** Inorganic Compounds  
**Chemical Formula:** \*\*\*PROPRIETARY\*\*\*  
**Synonyms:** REXALLOY®™  
**Product Use:** Cobalt Alloy  
**Emergency Phone:** (908) 245-2255

### 2 HAZARDS IDENTIFICATION

NFPA:  
HMIS III:

Health = 1, Fire = 0, Reactivity = 0  
H\*1/F0/PH0



HMIS III	
HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARDS	0
PERSONAL PROTECTION E   Safety Glasses, Gloves, Dust Respirator	

PERSONAL PROTECTION INDEX													
A		G											
B		H											
C		I											
D		J											
E		K											
F		X	Consult your supervisor or S.O.P. for "SPECIAL" handling directions										
A		n		O		p		q		r		S	
t		u		w		y		Z		Additional Information			



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GHS Signal Word:  
WARNING

GHS Hazard Pictograms:



GHS Classifications:

Health, Skin corrosion/irritation, 2  
Health, Serious Eye Damage/Eye Irritation, 2 A  
Health, Specific target organ toxicity - Single exposure, 3

GHS Phrases:

H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation

GHS Precautionary Statements:

P261 - Avoid breathing dust produced while using this product.  
P264 - Wash face, hands and any exposed skin thoroughly after handling.  
P271 - Use only outdoors or in a well-ventilated area.  
P281 - Use personal protective equipment as required.  
P285 - In case of inadequate ventilation wear respiratory protection.  
P304+341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305+351+338 - IF IN EYES: Do NOT rub. Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.  
P333+313 - If skin irritation or a rash occurs: Get medical advice/attention.  
P337+313 - If eye irritation persists: Get medical advice/attention.  
P342 - If experiencing respiratory symptoms: Get medical advice/attention.  
P362 - Take off contaminated clothing and wash before reuse.  
P501 - Dispose of contents/container to an approved waste disposal plant.

**Iron Oxide:** Prolonged or repeated exposures to high concentrations may cause lung changes considered to be a benign pneumoconiosis (siderosis). Inhalation of Iron Oxide may cause irritation of eyes, nose and throat, followed by potential metal fume fever.

**Manganese:** Exposure may cause irritation of eyes, nose, and throat, metallic taste in mouth and metal fume fever. Advanced exposure symptoms may include weakness, sleepiness, nervousness, lack of coordination, uncontrollable laughter, mental confusion, speech disturbances, and aggressiveness. Manganese may cause bronchitis, pneumonitis, and central nervous system disturbances.

**Chromium and/or Nickel:** Certain forms of Chromium and Nickel have been associated with cancer of the lungs and nasal passages. Elemental, divalent and trivalent Chromium compounds, i.e., as in steel, have not been found to cause cancer in humans. Nickel and Chromium have been found to cause adverse skin and respiratory reactions including dermatitis, bronchitis, ulceration and perforation of the nasal septum, coughing, wheezing, and dyspnea. Skin contact generally under high temperature and humidity has been associated with dermatitis known as "Nickel Itch".

**Molybdenum:** Slight irritation of the eyes, nose and throat. Animal studies suggest the possibility of digestive disturbances such as colic, diarrhea, weight loss, and the development of pneumoconiosis, anemia, and gout.



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Vanadium: Irritation of respiratory tract and conjunctivae. Excessive exposure may result in skin pallor, greenish discoloration of the tongue, eczematous skin lesions, cough, bronchitis and chest pains. Long term exposure may cause pulmonary edema, pneumonia, chronic bronchitis, anemia, albuminuria and nervous complaints.

Cobalt: Mildly irritation to the eyes and skin. Inhalation of dust may cause an asthma-like disease with cough and dyspnea which may progress to pneumonia with marked fibrosis. Cobalt-Chromium alloys have been found to induce cancer in animals and are listed by IARC as potential carcinogens.

Coating Oils: Steel coated with an oil may result in a mild skin irritation upon prolonged and repeated contact. Wear gloves and/or wash skin following contact to prevent skin irritation.

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### COMPOSITION/INFORMATION ON INGREDIENTS

#### Ingredients:

Cas #	Percentage	Chemical Name
1309-37-1	0.10-20.0%	Iron oxide (Fe <sub>2</sub> O <sub>3</sub> )
7440-44-0	0.01-2.0%	Carbon
7439-96-5	0.01-2.0%	Manganese
7723-14-0	0.001-0.080%	Phosphorus
7704-34-9	0.001-0.080%	Sulfur
7440-21-3	0.001-2.50%	Silicon
7440-47-3	0.05-35.0%	Chromium
7440-02-0	0.50-25.0%	Nickel
7439-98-7	0.05-10.0%	Molybdenum
7440-62-2	0.02-5.0%	Vanadium
7440-48-4	0.01-25.0%	Cobalt
7440-33-7	0.01-20.0%	Tungsten

\*Balance of ingredients are non-hazardous, as defined by OSHA 29 CFR 1910.1200 or the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), or hazardous in less than 1% concentration (or 0.1% for carcinogens, reproductive toxins, or respiratory/skin sensitizers).

\*\*The specific percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of 29CFR1910.1200 Sect. (i) Trade Secrets.

\*\*\*The above chemistries are provided for industrial hygiene and environmental purposes and are not intended to represent product specifications. This information has been compiled from data believed to be reliable. Elements such as Aluminum, Arsenic, Boron, Calcium, Cadmium, Copper, Lead, Tin, Titanium, and Zirconium may be present in trace amounts. Steel products as shipped do not present an exposure hazard.

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### FIRST AID MEASURES

- Inhalation:** Not expected as a result of exposure to finished product. If dust is generated, and subsequently inhaled, blow nose to remove substance from nasal passages. Give oxygen or artificial respiration if needed. If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention.
- Skin Contact:** Generally this product does not irritate the skin except through mechanical abrasion. As a precaution, take off contaminated clothing and shoes immediately. Promptly flush skin with water for at least 15 minutes to ensure all chemical is removed. If reddening develops and/or persists, obtain medical attention.
- Eye Contact:** Do NOT rub eyes. Flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses if present and easy to do so. If eye irritations persists, obtain medical attention.
- Ingestion:** Generally this product does not irritate through ingestion. Rinse mouth with water. Give 3-4 glasses of water or milk to dilute stomach contents. Do NOT induce vomiting. If vomiting occurs, give more water or



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milk. Never give anything by mouth to an unconscious person. If symptoms develop and/or persist, obtain medical attention.

### Most important symptoms and effects, both acute and delayed:

The most important known symptoms and effects are described in the labelling (see Section 2) and/or Section 11.

### Indication of any immediate medical attention and special treatment needed:

No data available.

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## FIRE FIGHTING MEASURES

<b>Flammability:</b>	Not flammable
<b>Flash Point:</b>	DNA
<b>Flash Point Method:</b>	DNA
<b>Burning Rate:</b>	No data available
<b>Autoignition Temp:</b>	DNA
<b>LEL:</b>	DNA
<b>UEL:</b>	DNA

### Extinguishing Media:

Water Spray  
Carbon Dioxide  
Alcohol-Resistant Foam  
Dry Chemical

### Special Hazards Arising From the Substance or Mixture:

Oxides of Iron, Carbon, Manganese, Phosphorus, Sulfur, Silicon, Chromium, Nickel, Molybdenum, Vanadium, Cobalt, Tungsten, Aluminum, Arsenic, Boron/Borates, Calcium, Cadmium, Copper, Lead, Tin, Titanium, and Zirconium.

### Advice for Firefighters:

Firefighters should wear full-face, positive-pressure respirators.

### Further Information:

If incinerated, may release toxic fumes.  
Use water spray to cool unopened containers.  
See Section 7 for more information on safe handling.  
See Section 8 for more information on personal protection equipment.  
See Section 13 for disposal information.

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## ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment, including dust respirator.  
Avoid dust formation.  
Avoid breathing dust.  
Keep from contacting skin or eyes.  
Ensure adequate ventilation.  
Evacuate personnel to safe areas.

### Environmental precautions:



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Prevent further release (leakage/spillage) if safe to do so.  
Do not allow product to enter drains.  
Do not allow to drain to environment.

### Methods and materials for containments and cleaning up:

Pick up mechanically and arrange disposal without creating dust.  
Sweep up, shovel or collect spillage with an electrically protected vacuum cleaner.  
Place contaminated material into suitable, closed containers for disposal.  
Dispose of contaminated material according to Section 13.  
After spillage has been collected, area may be flushed with water or wet-brushed.  
Ensure adequate ventilation.

### Reference to Other Sections:

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for information on proper disposal.

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## HANDLING AND STORAGE

### Handling Precautions:

Wear protective clothing.  
Avoid breathing dusts.  
Avoid formation of dusts.  
Avoid contact with eyes, skin, or clothing.  
Keep containers closed when not in use.  
Do not expose containers to open flame, excessive heat, or direct sunlight.  
Do not puncture or drop containers.  
Handle with care and avoid spillage on the floor.  
Keep material out of reach of children.  
Keep material away from incompatible materials.  
Wash thoroughly after handling.  
Ensure adequate ventilation.

### Storage Requirements:

Keep container tightly closed.  
Store in a dry place.  
Store away from strong acids, strong bases, strong oxidizing agents, mineral acids, acetylene, hydrazanium nitrate, chloroformates, peroxides, halogens, sulfur oxides, Phosphorus, bromine trifluoride, chlorine trifluoride, Fluorine, lead oxide, Hydrogen gas, methanol, organic solvents, Aluminum, Ammonia, Copper, Oxygen gas, alkali carbonates, Calcium, cobalt difluoride, manganese trifluoride, amines, Bromine, potassium dichromate, nitryl fluoride, oxygen difluoride and hydrogen sulfide gas.

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## EXPOSURE CONTROLS/PERSONAL PROTECTION

### Engineering Controls:

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

### Personal Protective Equip:

Eye/face protection:  
When using material use safety glasses, gloves and dust respirator according to HMIS PP, E.  
All safety equipment should be tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).



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#### Skin protection:

Handle with gloves made from PVC, butyl-rubber, neoprene, nitrile or fluorinated rubber. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose of contaminated gloves according to applicable laws and laboratory practices.

#### Body Protection:

Not required. Type of protective equipment should be selected based on concentration amount and conditions of use of this material.

#### Respiratory protection:

Use of a dust respirator is highly recommended when using material in poorly ventilated spaces or in a manner that generates dust. Full-face dust respirator may be required as backup to engineering controls when proper engineering controls are not in place to keep TLV and PEL limits below defined thresholds.

#### Control of environmental exposure:

Prevent leakage or spillage if safe to do so. Do not let material enter drains.

#### Components with workplace control parameters:

Component: Iron oxide (Fe<sub>2</sub>O<sub>3</sub>)

CAS No: 1309-37-1

USA ACGIH (TWA/TLV): 5 mg/m<sup>3</sup>

USA NIOSH (TWA/REL): 5 mg/m<sup>3</sup>

USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 10 mg/m<sup>3</sup>

USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 15 mg/m<sup>3</sup> (Total Dusts)

USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 5 mg/m<sup>3</sup> (Respirable Fraction)

Component: Manganese

CAS No: 7439-96-5

USA ACGIH (TWA/TLV): 0.2 mg/m<sup>3</sup>

USA NIOSH (TWA/REL): 1 mg/m<sup>3</sup>

USA NIOSH (ST/REL): 3 mg/m<sup>3</sup>

USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 10 mg/m<sup>3</sup>

USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (C): 5 mg/m<sup>3</sup>

Component: Phosphorus

CAS No: 7723-14-0

USA NIOSH (TWA/REL): 0.1 mg/m<sup>3</sup>

USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 0.1 mg/m<sup>3</sup>

Component: Silicon

CAS No: 7440-21-3

USA NIOSH (TWA/REL): 5 mg/m<sup>3</sup>

USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 10 mg/m<sup>3</sup> (Total Dusts)

USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 5 mg/m<sup>3</sup> (Respirable Fraction)

USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 15 mg/m<sup>3</sup> (Total Dusts)

USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 5 mg/m<sup>3</sup> (Respirable Fraction)

Component: Chromium

CAS No: 7440-47-3

USA ACGIH (TWA/TLV): 0.5 mg/m<sup>3</sup>

USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 1 mg/m<sup>3</sup>

Component: Nickel



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CAS No: 7440-02-0  
USA ACGIH (TWA/TLV): 1.5 mg/m<sup>3</sup>  
USA NIOSH (TWA/REL): 0.015 mg/m<sup>3</sup>  
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 1 mg/m<sup>3</sup>

Component: Molybdenum  
CAS No: 7439-98-7  
USA ACGIH (TWA/TLV): 3 mg/m<sup>3</sup>  
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 15 mg/m<sup>3</sup>

Component: Vanadium  
CAS No: 7440-62-2  
USA NIOSH (TWA/REL): 1 mg/m<sup>3</sup>  
USA NIOSH (ST/REL): 3 mg/m<sup>3</sup>

Component: Cobalt  
CAS No: 7440-48-4  
USA ACGIH (TWA/TLV): 0.02 mg/m<sup>3</sup>  
USA NIOSH (TWA/REL): 0.05 mg/m<sup>3</sup>  
USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 0.1 mg/m<sup>3</sup>

Component: Tungsten  
CAS No: 7440-33-7  
USA ACGIH (TWA/TLV): 5 mg/m<sup>3</sup>  
USA ACGIH (STEL/TLV): 10 mg/m<sup>3</sup>  
USA NIOSH (TWA/REL): 5 mg/m<sup>3</sup>  
USA NIOSH (ST/REL): 10 mg/m<sup>3</sup>

### Biological occupational exposure limits:

Component: Cobalt  
CAS No: 7440-48-4  
Parameters: Cobalt; Cobalt  
Biological Specimen: Urine; In blood  
Basis: ACGIH Biological Exposure Indices (BEI); ACGIH Biological Exposure Indices (BEI)  
Value: 15 ug/l; 1 ug/l

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## PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Gray metal	<b>Odor:</b>	Odorless
<b>Physical State:</b>	Solid	<b>Molecular Formula:</b>	MIXTURE
<b>Odor Threshold:</b>	Not determined	<b>Solubility:</b>	Insoluble
<b>Particle Size:</b>	Not determined	<b>Softening Point:</b>	Not determined
<b>Spec Grav./Density:</b>	7.50 - 8.50 g/cm <sup>3</sup>	<b>Percent Volatile:</b>	DNA
<b>Viscosity:</b>	Not determined	<b>Heat Value:</b>	Not determined
<b>Sat. Vap. Conc.:</b>	Not determined	<b>Freezing/Melting Pt.:</b>	1,204.4 - 13,871.1 °C (2,200.0 - 25,000
<b>Boiling Point:</b>	Not determined	<b>Flash Point:</b>	DNA
<b>Flammability:</b>	(solid, gas): Not flammable	<b>Octanol:</b>	Not determined
<b>Partition Coefficient:</b>	Not determined	<b>Vapor Density:</b>	(air = 1): Not determined
<b>Vapor Pressure:</b>	(mm Hg @ 25 °C): Not determined	<b>VOC:</b>	DNA
<b>pH:</b>	@ 100%: DNA	<b>Bulk Density:</b>	Not determined
<b>Evap. Rate:</b>	(nBuAc = 1): DNA	<b>Auto-Ignition Temp:</b>	Not determined
<b>Molecular weight:</b>	MIXTURE	<b>UFL/LFL:</b>	Not determined
<b>Decomp Temp:</b>	Not determined		



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### STABILITY AND REACTIVITY

- Stability:** Product is stable under normal conditions.
- Conditions to Avoid:** Incompatibilities, flames, ignition sources, moisture.
- Materials to Avoid:** Strong acids, strong bases, strong oxidizing agents, mineral acids, acetylene, hydrazanium nitrate, chloroformates, peroxides, halogens, sulfur oxides, Phosphorus, bromine trifluoride, chlorine trifluoride, Fluorine, lead oxide, Hydrogen gas, methanol, organic solvents, Aluminum, Ammonia, Copper, Oxygen gas, alkali carbonates, Calcium, cobalt difluoride, manganese trifluoride, amines, Bromine, potassium dichromate, nitryl fluoride, oxygen difluoride and hydrogen sulfide gas.
- Hazardous Decomposition:** Oxides of Iron, Carbon, Manganese, Phosphorus, Sulfur, Silicon, Chromium, Nickel, Molybdenum, Vanadium, Cobalt, Tungsten, Aluminum, Arsenic, Boron/Borates, Calcium, Cadmium, Copper, Lead, Tin, Titanium, and Zirconium.
- Hazardous Polymerization:** Will not occur.

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### TOXICOLOGICAL INFORMATION

**Component:** Iron oxide (Fe<sub>2</sub>O<sub>3</sub>)

**CAS No:** 1309-37-1

**Acute Toxicity:**

No data available.

**Component:** Carbon

**CAS No:** 7440-44-0

**Acute Toxicity:**

LD50 Intravenous - Mouse: 440 mg/kg

**Component:** Manganese

**CAS No:** 7439-96-5

**Acute Toxicity:**

LD50 Oral - Rat: 9,000 mg/kg

**Component:** Phosphorus

**CAS No:** 7723-14-0

**Acute Toxicity:**

LD50 Oral - Rat: > 15,000 mg/kg

LD50 Inhalation - Rat: 2,000 mg/m<sup>3</sup> (4 h)

**Component:** Sulfur

**CAS No:** 7704-34-9

**Acute Toxicity:**

LD50 Oral - Rat: > 2,000 mg/kg

LDLO Oral - Rabbit: 175 mg/kg

LD50 Dermal - Rabbit: > 2,000 mg/kg

LD50 Inhalation - Rat: > 9.23 mg/l (4 h)

LDLO Intravenous - Rat: 8 mg/kg

LDLO Intravenous - Rabbit: 5 mg/kg

LDLO Intravenous - Dog: 10 mg/kg

LDLO Intraperitoneal - Guinea Pig: 55 mg/kg





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**Component:** Silicon

**CAS No:** 7440-21-3

**Acute Toxicity:**

LD50 Oral - Rat: 3,160 mg/kg

**Component:** Chromium

**CAS No:** 7740-47-3

**Acute Toxicity:**

LD50 Oral - Rat: 9,000 mg/kg

LD50 Inhalation - Rat: 2,000 mg/m<sup>3</sup> (4 h)

**Component:** Nickel

**CAS No:** 7440-02-0

**Acute Toxicity:**

No data available.

**Component:** Molybdenum

**CAS No:** 7439-98-7

**Acute Toxicity:**

LD50 Oral - Rat: > 5,000 mg/kg

LD50 Dermal - Rat: > 2,000 mg/kg

LD50 Inhalation - Rat: > 5.84 mg/l (4 h)

**Component:** Vanadium

**CAS No:** 7440-62-2

**Acute Toxicity:**

No data available.

**Component:** Cobalt

**CAS No:** 7440-48-4

**Acute Toxicity:**

LD50 Oral - Rat: 6,171 mg/kg

**Component:** Tungsten

**CAS No:** 7440-33-7

**Acute Toxicity:**

No data available.

**Skin Corrosion/Irritation:** Mechanical abrasion may cause skin irritation.

**Serious Eye Damage/Eye Irritation:** Mechanical abrasion causes eye irritation.

**Respiratory or Skin Sensitation:** May cause an allergic reaction in certain sensitive individuals.

**Germ Cell Mutagenicity:** No data available.

**Carcinogenicity:** This product is or contains a component that is carcinogenic to humans (Nickel < 1 mm in diameter), two components that are possibly carcinogenic to humans (Nickel < 1 mm in diameter, Cobalt) and two components that are not classifiable as to their carcinogenicity to humans (Iron oxide (Fe<sub>2</sub>O<sub>3</sub>), Chromium) based on their IARC, ACGIH, NTP, or EPA classification.

IARC: 1 - Group 1: Carcinogenic to humans (Nickel < 1 mm in diameter). 2B - Group 2B: Possibly carcinogenic to humans (Nickel < 1 mm in diameter). 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Iron oxide (Fe<sub>2</sub>O<sub>3</sub>), Chromium).

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or



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potential carcinogen by ACGIH.

NTP: Reasonably anticipated to be a human carcinogen (Nickel < 1 mm in diameter).

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive Toxicity:** No data available.

**Specific Target Organ Toxicity - Single Exposure:** Respiratory system - May cause respiratory irritation.

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

**Aspiration Hazard:** No data available.

**Additional Information:**

Component: Iron oxide (Fe<sub>2</sub>O<sub>3</sub>); RTECS: NO7400000

Component: Carbon; RTECS: FF5250100

Component: Manganese; RTECS: OO9275000

Component: Phosphorus; RTECS: TH3495000

Component: Sulfur; RTECS: WS4250000

Component: Silicon; RTECS: VW0400000

Component: Chromium; RTECS: GB4200000

Component: Nickel; RTECS: QR5950000

Component: Molybdenum; RTECS: QA6800000

Component: Vanadium; RTECS: YW1355000

Component: Cobalt; RTECS: GF8750000

Component: Tungsten; RTECS: YO7175000

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## ECOLOGICAL INFORMATION

**Component:** Iron oxide (Fe<sub>2</sub>O<sub>3</sub>)

**CAS No:** 1309-37-1

**Toxicity:**

No data available.

**Component:** Carbon

**CAS No:** 7440-44-0

**Toxicity:**

No data available.

**Component:** Manganese

**CAS No:** 7439-96-5

**Toxicity:**

*Toxicity to daphnia and other aquatic invertebrates:*

EC50 - Daphnia magna (Water Flea): 40 mg/l (48 h)

**Component:** Phosphorus

**CAS No:** 7723-14-0

**Toxicity:**

*Toxicity to fish:*

LC50 - Danio rerio (Zebra Fish): 33.2 mg/l (96 h)

*Toxicity to daphnia and other aquatic invertebrates:*



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EC50 - Daphnia magna (Water Flea): 10.5 mg/l (48 h)

*Toxicity to algae:*

EC50 - Desmodesmus subspicatus (Green Algae): 18.3 mg/l (72 h)

*Toxicity to bacteria:*

EC50 - Sludge Treatment: > 1,000 mg/l (3 h)

**Component:** Sulfur

**CAS No:** 7704-34-9

**Toxicity:**

*Toxicity to fish:*

LC50 - Oncorhynchus mykiss (Rainbow Trout): > 180 mg/l (96 h)

LC50 - Other Fish: 866 mg/l (96 h)

*Toxicity to daphnia and other aquatic invertebrates:*

EC50 - Daphnia magna (Water Flea): > 5,000 mg/l (48 h)

**Component:** Silicon

**CAS No:** 7440-21-3

**Toxicity:**

No data available.

**Component:** Chromium

**CAS No:** 7740-47-3

**Toxicity:**

No data available.

**Component:** Nickel

**CAS No:** 7440-02-0

**Toxicity:**

*Toxicity to fish:*

LC50 - Cyprinus carpio (Carp): 1.3 mg/l (96 h)

*Toxicity to daphnia and other aquatic invertebrates:*

EC50 - Daphnia magna (Water Flea): 1 mg/l (48 h)

**Component:** Molybdenum

**CAS No:** 7439-98-7

**Toxicity:**

*Toxicity to fish:*

LC50 - Oncorhynchus mykiss (Rainbow Trout): 800 mg/l (96 h)

LOEC - Oncorhynchus mykiss (Rainbow Trout): 500 mg/l (96 h)

**Component:** Vanadium

**CAS No:** 7440-62-2

**Toxicity:**

No data available.

**Component:** Cobalt

**CAS No:** 7440-48-4

**Toxicity:**

*Toxicity to fish:*

LC50 - Danio rerio (Zebra Fish): 100.01 mg/l (96 h)



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**Component:** Tungsten

**CAS No:** 7440-33-7

**Toxicity:**

No data available.

**Persistence and Degradability:**

No data available.

**Bioaccumulative potential:**

No data available.

**Mobility in Soil:**

Not required/conducted.

**Results of PBT and vPvB assessment:**

Not required/conducted.

**Other Adverse Effects:**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life. Very toxic to aquatic life with long lasting effects.

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### DISPOSAL CONSIDERATIONS

Product: Hazardous wastes shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution, release into the environment or damage to people and animals. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging: Dispose of as unused product.

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### TRANSPORT INFORMATION

**DOT (US)**

Non-regulated material, solid

**IMDG**

Non-regulated material, solid

**IATA**

Non-regulated material, solid

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### REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

\*Iron oxide (Fe2O3) (1309371 0.10-20.0%) MASS, NJHS, OSHAWAC, PA, SARA311/312, TSCA, TXAIR

\*Carbon (7440440 0.01-2.0%) NJHS, PA, SARA311/312, TSCA

\*Manganese (7439965 0.01-2.0%) MASS, NJHS, OSHAWAC, PA, SARA311/312, SARA313, TSCA, TXAIR

\*Phosphorus (7723140 0.001-0.080%) CERCLA, CSWHS, EHS302, EPCRAWPC, HAP, MASS, OSHAWAC, PA,



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SARA311/312, SARA313, TSCA, TXAIR

\*Sulfur (7704349 0.001-0.080%) MASS, PA, SARA311/312, TSCA

\*Silicon (7440213 0.001-2.50%) MASS, NJHS, OSHAWAC, PA, SARA311/312, TSCA, TXAIR

\*Chromium (7440473 0.05-35.0%) CERCLA, EPCRAWPC, HWRCRA, MASS, NJHS, NRC, OSHAWAC, PA, PRIPOL, SARA311/312, SARA313, TOXICPOL, TSCA, TXAIR

\*Nickel (7440020 0.50-25.0%) CERCLA, EPCRAWPC, MASS, NJHS, NRC, OSHAWAC, PA, PRIPOL, PROP65, SARA311/312, SARA313, TOXICPOL, TSCA

\*Molybdenum (7439987 0.05-10.0%) MASS, NJHS, OSHAWAC, PA, TSCA, TXAIR

\*Vanadium (7440622 0.02-5.0%) EPCRAWPC, MASS, NJHS, PA, SARA311/312, SARA313, TSCA

\*Cobalt (7440484 0.01-25.0%) MASS, NJHS, OSHAWAC, PA, PROP65, SARA311/312, SARA313, TSCA, TXAIR

\*Tungsten (7440337 0.01-20.0%) MASS, NJHS, OSHAWAC, PA, SARA311/312, TSCA, TXAIR

### REGULATORY KEY DESCRIPTIONS

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CERCLA = Superfund clean up substance  
CSWHS = Clean Water Act Hazardous substances  
EHS302 = Extremely Hazardous Substance  
EPCRAWPC = EPCRA Water Priority Chemicals  
HAP = Hazardous Air Pollutants  
HWRCRA = RCRA Hazardous Wastes  
MASS = MA Massachusetts Hazardous Substances List  
NJHS - New Jersey Right to Know Hazardous Substances  
NRC = Nationally Recognized Carcinogens  
OSHA WAC = OSHA Workplace Air Contaminants  
PA = PA Right-To-Know List of Hazardous Substances  
PRIPOL = Clean Water Act Priority Pollutants  
PROP65 = CA Prop 65  
SARA311/312 = SARA 311/312 Toxic Chemicals  
SARA313 = SARA 313 Title III Toxic Chemicals  
TOXICPOL = Clean Water Act Toxic Pollutants  
TSCA = Toxic Substances Control Act  
TXAIR = TX Air Contaminants with Health Effects Screening Level



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### OTHER INFORMATION

#### Disclaimer:

The data in this Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material in any process. The information set forth herein is furnished free of charge and is based on technical data that Alloy Cast Products, Inc. believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside of Alloy Cast Products, Inc.'s control, Alloy Cast Products, Inc. makes no warranties, expressed or implied, and assumes no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under, or a recommendation to infringe upon, any patents.

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