Cobalt Alloy

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

**HAZARDS IDENTIFICATION**

**NFPA:**
- Health = 1
- Fire = 0
- Reactivity = 0
- H*1/F0/PH0

**NFPA:**
- **FIRE HAZARD**
  - Health: 1
  - Flammability: 0
  - Physical Hazards: 0

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

**PERSONAL PROTECTION INDEX**

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Contact your supervisor or S.O.P for "SPECIAL" handling directions.
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.
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.

### COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients:</th>
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<tr>
<td>Cas #</td>
<td>Percentage</td>
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<tr>
<td>1309-37-1</td>
<td>0.10-20.0%</td>
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<tr>
<td>7440-44-0</td>
<td>0.01-2.0%</td>
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<tr>
<td>7439-96-5</td>
<td>0.01-2.0%</td>
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<tr>
<td>7723-14-0</td>
<td>0.001-0.080%</td>
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<td>7704-34-9</td>
<td>0.001-0.080%</td>
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<tr>
<td>7440-21-3</td>
<td>0.001-2.50%</td>
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<td>7440-47-3</td>
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<td>7440-02-0</td>
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<td>7439-98-7</td>
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<td>7440-62-2</td>
<td>0.02-5.0%</td>
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<tr>
<td>7440-48-4</td>
<td>0.01-25.0%</td>
</tr>
<tr>
<td>7440-33-7</td>
<td>0.01-20.0%</td>
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*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.

### 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
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.

5  FIRE FIGHTING MEASURES

Flammability: Not flammable
Flash Point: DNA
Flash Point Method: DNA
Burning Rate: No data available
Autoignition Temp: DNA
LEL: DNA
UEL: 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.

6  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:
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.

7 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, hydrazinium 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.

8 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).
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 mateirial 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 (Fe2O3)
CAS No: 1309-37-1
USA ACGIH (TWA/TLV): 5 mg/m$^3$
USA NIOSH (TWA/REL): 5 mg/m$^3$
USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 10 mg/m$^3$
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 15 mg/m$^3$ (Total Dusts)
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 5 mg/m$^3$ (Respirable Fraction)

Component: Manganese
CAS No: 7439-96-5
USA ACGIH (TWA/TLV): 0.2 mg/m$^3$
USA NIOSH (TWA/REL): 1 mg/m$^3$
USA NIOSH (ST/REL): 3 mg/m$^3$
USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 10 mg/m$^3$
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 5 mg/m$^3$ (Respirable Fraction)

Component: Phosphorus
CAS No: 7723-14-0
USA NIOSH (TWA/REL): 0.1 mg/m$^3$
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 0.1 mg/m$^3$

Component: Silicon
CAS No: 7440-21-3
USA NIOSH (TWA/REL): 5 mg/m$^3$
USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 10 mg/m$^3$ (Total Dusts)
USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 5 mg/m$^3$ (Respirable Fraction)
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 15 mg/m$^3$ (Total Dusts)
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 5 mg/m$^3$ (Respirable Fraction)

Component: Chromium
CAS No: 7440-47-3
USA ACGIH (TWA/TLV): 0.5 mg/m$^3$
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 1 mg/m$^3$

Component: Nickel
CAS No: 7440-02-0  
USA ACGIH (TWA/TLV): 1.5 mg/m³  
USA NIOSH (TWA/REL): 0.015 mg/m³  
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 1 mg/m³

Component: Molybdenum  
CAS No: 7439-98-7  
USA ACGIH (TWA/TLV): 3 mg/m³  
USA OSHA Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants (TWA): 15 mg/m³

Component: Vanadium  
CAS No: 7440-62-2  
USA NIOSH (TWA/REL): 1 mg/m³  
USA NIOSH (ST/REL): 3 mg/m³

Component: Cobalt  
CAS No: 7440-48-4  
USA ACGIH (TWA/TLV): 0.02 mg/m³  
USA NIOSH (TWA/REL): 0.05 mg/m³  
USA OSHA - Table Z-1 Limits for Air Contaminants 1910.1000 (TWA): 0.1 mg/m³

Component: Tungsten  
CAS No: 7440-33-7  
USA ACGIH (TWA/TLV): 5 mg/m³  
USA ACGIH (STEL/TLV): 10 mg/m³  
USA NIOSH (TWA/REL): 5 mg/m³  
USA NIOSH (ST/REL): 10 mg/m³

Biological occupational exposure limits:

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

PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Gray metal  
Physical State: Solid  
Odor Threshold: Not determined  
Particle Size: Not determined  
Spec Grav./Density: 7.50 - 8.50 g/cm³  
Viscosity: Not determined  
Sat. Vap. Conc.: Not determined  
Boiling Point: Not determined  
Flammability: (solid, gas): Not flammable  
Partition Coefficient: Not determined  
Vapor Pressure: (mm Hg @ 25 °C): Not determined  
PH: @ 100%: DNA  
Evap. Rate: (nBuAc = 1): DNA  
Molecular weight: MIXTURE  
Decomp Temp: Not determined  
Odor: Odorless  
Molecular Formula: MIXTURE  
Solubility: Insoluble  
Softening Point: Not determined  
Percent Volatile: DNA  
Heat Value: Not determined  
Freezing/Melting Pt.: 1,204.4 - 13,871.1 °C (2,200.0 - 25,000)  
Flash Point: DNA  
Octanol: Not determined  
Vapor Density: (air = 1): Not determined  
VOC: DNA  
Bulk Density: Not determined  
Auto-Ignition Temp: Not determined  
UFL/LFL: Not determined  
PHYSICAL STATE: Solid  
Odor Threshold: Not determined  
Softening Point: Not determined  
Percent Volatile: DNA  
Heat Value: Not determined  
Freezing/Melting Pt.: 1,204.4 - 13,871.1 °C (2,200.0 - 25,000)  
Flash Point: DNA  
Octanol: Not determined  
Vapor Density: (air = 1): Not determined  
VOC: DNA  
Bulk Density: Not determined  
Auto-Ignition Temp: Not determined  
UFL/LFL: Not determined
10 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 Polymerization: Will not occur.

11 TOXICOLOGICAL INFORMATION

Component: Iron oxide (Fe2O3)
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/m³ (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
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/m³ (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 Sensitization: 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 (Fe2O3), 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 (Fe2O3), Chromium).

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or
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 (Fe2O3); 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: QA680000
Component: Vanadium; RTECS: YW1355000
Component: Cobalt; RTECS: GF8750000
Component: Tungsten; RTECS: YO7175000

ECOLOGICAL INFORMATION

Component: Iron oxide (Fe2O3)
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:
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: 77704-34-9
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: 77740-47-3
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)
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.

13 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.

14 TRANSPORT INFORMATION

DOT (US)
Non-regulated material, solid

IMDG
Non-regulated material, solid

IATA
Non-regulated material, solid

15 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,
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
CSWH5 = 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
OSHAWAC = 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
Disclaimer:

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