Parker Steel Company

# Safety Data Sheet

## * * * Section 1 - Product and Company Identification * * *

**Material Name: Leaded Carbon and Alloy Steels**
**Common Alloy/Grade: Bar, Rod, Sheet, Plate, Tubing, Pipe, Structurals**
**Recommended Use: Solid product, various forms and uses**

**Supplier Information**

Parker Steel Company
1625 Indian Wood Circle
Maumee, Ohio 43537
P: 800-333-4140
Website: www.metricmetal.com
Email: sales@metricmetal.com

Emergency # CHEMTREC (US Transportation): (800) 424-9300 CANUTEC (Canadian Transportation): (613) 996-6666

## * * * Section 2 - Hazards Identification * * *

**General Hazard Statement:** Solid metallic products are generally classified as “articles” and do not constitute a hazardous material in solid form under the definitions of the OSHA Hazard Communication Standard (29 CFR 1910.1200). Any articles manufactured from these solid products would be generally classified as non-hazardous. However some hazardous elements contained in these products can be emitted under certain processing conditions such as but not limited to: burning, melting, cutting, sawing, brazing, grinding, machining, milling, and welding. Products in the solid state present no fire or explosion hazard. Small chips, fines, and dust may ignite readily, though. The following classification information is for the hazardous elements which may be released during processing.

### GHS Classification:

Flammable Solid – Category 1
Eye Damage/Irritation - Category 2B
Respiratory Sensitizer - Category 1
Skin Sensitizer - Category 1
Germ Cell Mutagenicity - Category 2
Carcinogenicity - Category 1B
Toxic to Reproduction - Category 1A
Specific Target Organ Toxicity (Repeated Exposure) - Category 1
Hazardous to the Aquatic Environment - Acute Hazard - Category 1

### GHS LABEL ELEMENTS

### Symbol(s)

### Signal Word

Danger

### Hazard Statements

Flammable solid.
Causes eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing genetic defects.



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May cause cancer.
May damage fertility or the unborn child.
Causes damage to respiratory system through prolonged or repeated exposure.
Very toxic to aquatic life.

## Precautionary Statements

**Prevention**

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Use explosion proof electrical/ventilating/lighting equipment.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe dust/fume.
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace.
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment

**Response**

In case of fire: Use Class D agent to extinguish.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists get medical advice/attention.
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
If exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
Collect spillage.

**Storage**

Store locked up

**Disposal**

Dispose of contents/container in accordance with local/regional/national/international regulations.

## * * * Section 3 - Composition / Information on Ingredients * * *

| CAS # | Component | Percent |
|---|---|---|
| 7439-89-6 | Iron | <31 |
| 7440-47-3 | Chromium | 0-11* |
| 7440-66-6 | Zinc | 0-10 |
| 7440-02-0 | Nickel | 0-9.5 |
| 7440-44-0 | Carbon | 0-5.5 |
| 7439-98-7 | Molybdenum | 0-5 |
| 7440-21-3 | Silicon | 0-4 |
| 7439-96-5 | Manganese | 0-3 |
| 7440-50-8 | Copper | 0-2.5 |
| 7429-90-5 | Aluminum | 0-2 |
| 7704-34-9 | Sulfur | 0-2 |
| 7440-69-9 | Bismuth | 0-1.5 |
| 7440-62-2 | Vanadium | 0-1 |
| 7440-32-6 | Titanium | 0-1 |
| 7439-92-1 | Lead | 0-1 |

| | | |
|---|---|---|
| 7440-36-0 | Antimony | 0-0.9 |
| 7440-70-2 | Calcium | 0-0.9 |
| 7727-37-9 | Nitrogen | 0-0.9 |
| 7723-14-0 | Phosphorus | 0-0.9 |
| 7782-49-2 | Selenium | 0-0.9 |
| 7440-33-7 | Tungsten | 0-0.9 |
| 7440-03-1 | Niobium | 0-0.9 |
| 7440-42-8 | Boron | 0-0.9 |
| 7439-95-4 | Magnesium | 0-0.9 |
| 7440-31-5 | Tin | 0-0.9 |
| 13494-80-9 | Tellurium | 0-0.5 |

The above listing is a summary of elements used in leaded steels. Various grades will contain different combinations of these elements. Other trace elements may also be present in minute amounts. These small quantities (less than 0.1%) are frequently referred to as “trace” or “residual” elements; generally they originate in the raw material used. Such elements would include arsenic (As), beryllium (Be), cadmium (Cd), cobalt (Co), mercury (Hg), oil mist (mineral[1]), oxygen (O), selenium (Se), tellurium (Te), and zirconium (Zr). Various byproducts of processing from these trace elements may include lead chromate, ozone, polybrominated biphenyls (PBB), and polybrominated diphenyl ether (PBDE), and these byproducts may also be considered trace. If listed in the above table, the ingredient is considered to be a component rather than trace.

*Leaded steel products as provided contain chromium metal in the zero valence state. As such, chromium metal does not present any unusual health hazard. However, welding, torch cutting, brazing, or grinding of chromium metal in leaded steel may generate airborne concentrations of hexavalent chromium.

**Footnotes:**

1. The product may have a light coating of oil to prevent corrosion.

## * * * Section 4 - First Aid Measures * * *

### First Aid: Eyes

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Consult a physician.

### First Aid: Skin

Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

### First Aid: Ingestion

Do NOT induce vomiting. Call a physician or Poison Control Center immediately. Drink plenty of water. Never give anything by mouth to an unconscious person.

### First Aid: Inhalation

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Consult a physician.

## * * * Section 5 - Fire Fighting Measures * * *

### General Fire Hazards

See Section 9 for Flammability Properties.

This product does not present fire or explosion hazards as shipped. Small chips, fines, and dust from processing may be readily ignitable.

### Hazardous Combustion Products

Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact.

### Extinguishing Media

Class D extinguishing agents on fines, dust or molten metal. Use coarse water spray on chips and fines.

### Unsuitable Extinguishing Media

DO NOT use halogenated extinguishing agents on small chips or fines. DO NOT use water for fires involving molten metal. These fire extinguishing agents will react with burning material.

### Fire Fighting Equipment/Instructions

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## * * * Section 6 - Accidental Release Measures * * *

### Recovery and Neutralization

Avoid dust formation. Collect scrap for recycling.

### Materials and Methods for Clean-Up

If product is molten, contain the flow using dry sand or salt flux as a dam. All tools and containers which come in contact with molten metal must be preheated or specially coated and rust free. Allow the spill to cool before remelting as scrap.

### Emergency Measures

Keep people away from and upwind of spill/leak.

### Personal Precautions and Protective Equipment

Wear appropriate protective clothing and respiratory protection for the situation.

### Environmental Precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.

### Prevention of Secondary Hazards

None

## * * * Section 7 - Handling and Storage * * *

### Handling Procedures

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Avoid dust formation. Keep material dry. Avoid contact with sharp edges or heated material.

### Storage Procedures

Keep container tightly closed in a dry and well-ventilated place.

### Incompatibilities

Acids. Alkalis. Water. Halogenated compounds. Metal oxides.

## * * * Section 8 - Exposure Controls / Personal Protection * * *

### A: Component Exposure Limits

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

ACGIH: 0.5 mg/m3 TWA
OSHA: 1 mg/m3 TWA
NIOSH: 0.5 mg/m3 TWA

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

ACGIH: 1.5 mg/m3 TWA (inhalable fraction)
OSHA: 1 mg/m3 TWA
NIOSH: 0.015 mg/m3 TWA

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

ACGIH: 10 mg/m3 TWA (inhalable fraction); 3 mg/m3 TWA (respirable fraction)
OSHA: 10 mg/m3 TWA

**Silicon (7440-21-3)**
OSHA: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
NIOSH: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)

**Manganese (7439-96-5)**
ACGIH: 0.2 mg/m3 TWA
OSHA: 1 mg/m3 TWA (fume)
3 mg/m3 STEL (fume)
5 mg/m3 Ceiling
NIOSH: 1 mg/m3 TWA (fume)
3 mg/m3 STEL

**Copper (7440-50-8)**
ACGIH: 0.2 mg/m3 TWA (fume)
OSHA: 0.1 mg/m3 TWA (dust, fume, mist, as Cu)
NIOSH: 1 mg/m3 TWA (dust and mist); 0.1 mg/m3 TWA (fume)

**Aluminum (7429-90-5)**
ACGIH: 1 mg/m3 TWA (respirable fraction)
OSHA: 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
NIOSH: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)

**Vanadium (7440-62-2)**
OSHA: 0.05 mg/m3 TWA (respirable dust, as V2O5); 0.05 mg/m3 TWA (fume, as V2O5)
NIOSH: 1 mg/m3 TWA (listed under Ferrovanadium dust)
3 mg/m3 STEL (listed under Ferrovanadium dust)

**Lead (7439-92-1)**
ACGIH: 0.05 mg/m3 TWA
OSHA: 30 µg/m3 Action Level (Poison, See 29 CFR 1910.1025); 50 µg/m3 TWA
NIOSH: 0.050 mg/m3 TWA

**Tin (7440-31-5)**
ACGIH: 2 mg/m3 TWA
OSHA: 2 mg/m3 TWA
NIOSH: 2 mg/m3 TWA

**Tungsten (7440-33-7)**
ACGIH: 5 mg/m3 TWA
10 mg/m3 STEL
OSHA: 5 mg/m3 TWA
10 mg/m3 STEL
NIOSH: 5 mg/m3 TWA
10 mg/m3 STEL

**Antimony (7440-36-0)**
ACGIH: 0.5 mg/m3 TWA
OSHA: 0.5 mg/m3 TWA
NIOSH: 0.5 mg/m3 TWA

**Phosphorus (7723-14-0)**
OSHA: 0.1 mg/m3 TWA
NIOSH: 0.1 mg/m3 TWA

**Selenium (7782-49-2)**
ACGIH: 0.2 mg/m3 TWA
OSHA: 0.2 mg/m3 TWA
NIOSH: 0.2 mg/m3 TWA

**Tellurium (13494-80-9)**
ACGIH: 0.1 mg/m3 TWA
OSHA: 0.1 mg/m3 TWA
NIOSH: 0.1 mg/m3 TWA

### Engineering Measures
Where feasible, enclose processes to prevent dust dispersion into the work area. Provide local exhaust when possible, and general ventilation as necessary, to keep airborne concentrations below exposure limits and as low as possible.

### Personal Protective Equipment: Respiratory
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

### Personal Protective Equipment: Hands
Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

### Personal Protective Equipment: Eyes
Wear safety glasses with side shields and/or goggles as necessary to prevent dust from entering eyes.

### Personal Protective Equipment: Skin and Body
Use body protection appropriate for task.

### Hygiene Measures
Do not breathe vapors/dust. When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs.

## * * * Section 9 - Physical & Chemical Properties * * *

| | | | |
|---|---|---|---|
| **Appearance:** | Gray-Metallic | **Odor:** | None |
| **Physical State:** | Solid | **pH:** | NA |
| **Vapor Pressure:** | ND | **Vapor Density:** | ND |
| **Boiling Point:** | ND | **Melting Point:** | ~1538 (°C) / ~2800 (°F) |
| **Solubility (H2O):** | Insoluble | **Specific Gravity:** | ~7.6-7.8 |
| **Evaporation Rate:** | ND | **VOC:** | ND |
| **Octanol/H2O Coeff.:** | ND | **Flash Point:** | NA |
| **Flash Point Method:** | NA | **Upper Flammability Limit (UFL):** | NA |
| **Lower Flammability Limit (LFL):** | NA | **Burning Rate:** | NA |
| **Auto Ignition:** | NA | | |

## * * * Section 10 - Chemical Stability & Reactivity Information * * *

### Chemical Stability
Stable under recommended storage conditions.

### Hazardous Reaction Potential
Will not occur.

### Conditions to Avoid
Dust formation. Heat, flames and sparks. Protect from water.

### Incompatible Products
Acids. Alkalis. Water. Halogenated compounds. Metal oxides.

## Hazardous Decomposition Products

Toxic metal oxides and carbon and nitrogen oxides may be produced during a fire involving metal alloys. Alloys with nickel may also produce poisonous nickel carbonyl.

## * * * Section 11 - Toxicological Information * * *

## Acute Toxicity

### Component Analysis - LD50/LC50

**Iron (7439-89-6)**
Oral LD50 Rat 984 mg/kg

**Nickel (7440-02-0)**
Oral LD50 Rat >9000 mg/kg

**Carbon (7440-44-0)**
Oral LD50 Rat >10000 mg/kg

**Silicon (7440-21-3)**
Oral LD50 Rat 3160 mg/kg

**Manganese (7439-96-5)**
Oral LD50 Rat 9 g/kg

**Sulfur (7704-34-9)**
Inhalation LC50 Rat >9.23 mg/L 4 h; Oral LD50 Rat >3000 mg/kg; Dermal LD50 Rabbit >2000 mg/kg

**Bismuth (7440-69-9)**
Oral LD50 Rat 5 g/kg

**Boron (7440-42-8)**
Oral LD50 Rat 650 mg/kg

**Magnesium (7439-95-4)**
Oral LD50 Rat 230 mg/kg

**Antimony (7440-36-0)**
Oral LD50 Rat 7 g/kg

**Phosphorus (7723-14-0)**
Inhalation LC50 Rat 4.3 mg/L 1 h; Oral LD50 Rat 3.03 mg/kg; Dermal LD50 Rat 100 mg/kg

**Selenium (7782-49-2)**
Oral LD50 Rat 6700 mg/kg

**Tellurium (13494-80-9)**
Inhalation LC50 Rat >2420 mg/m3 4 h; Oral LD50 Rat 83 mg/kg

## Potential Health Effects: Skin Corrosion Property/Stimulativeness

Contact with dust can cause mechanical irritation or drying of the skin. Contact with oils from processing may cause irritation. Prolonged skin contact may defat the skin and produce dermatitis. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

## Potential Health Effects: Eye Critical Damage/ Stimulativeness

Dust contact with the eyes can lead to mechanical irritation.

## Potential Health Effects: Ingestion

May be harmful if swallowed. May cause additional affects as listed under "Inhalation".

## Potential Health Effects: Inhalation

May be harmful if inhaled. Inhalation of dust in high concentration may cause irritation of respiratory system.

## Respiratory Organs Sensitization/Skin Sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

## Generative Cell Mutagenicity

Suspected of causing genetic defects

## Carcinogenicity

### A: General Product Information

May cause cancer.

### B: Component Carcinogenicity

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

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 49 [1990] (listed under Chromium and Chromium compounds); Supplement 7 [1987] (Group 3 (not classifiable))

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

ACGIH: A5 - Not Suspected as a Human Carcinogen
NIOSH: potential occupational carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 49 [1990]; Supplement 7 [1987] (Group 2B (possibly carcinogenic to humans))

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

ACGIH: A4 - Not Classifiable as a Human Carcinogen

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

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
OSHA: 30 µg/m3 Action Level (Poison, See 29 CFR 1910.1025); 50 µg/m3 TWA
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 87 [2006] (evaluates inorganic lead compounds as Group 2A and organic lead compounds as Group 3) (Group 2A (probably carcinogenic to humans))

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

IARC: Supplement 7 [1987]; Monograph 9 [1975] (Group 3 (not classifiable))

## Reproductive Toxicity

Lead may damage the reproductive system and cause developmental damage.

## Specified Target Organ General Toxicity: Single Exposure

Causes damage to organs (kidneys, respiratory system)

## Specified Target Organ General Toxicity: Repeated Exposure

May cause damage to organs through prolonged or repeated exposure (respiratory system). Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure. Prolonged exposure may cause chronic effects. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.

Elevated temperature processing such as welding and plasma arc cutting may release hazardous fumes. Overexposure to metal fumes may cause pulmonary edema (fluid in the lungs) and methemaglobinemia. May also cause pulmonary fibrosis and lung cancer. Lead compounds may be absorbed by ingestion, by inhalation and through the skin. Lead may damage kidney function, the blood forming system and the reproductive system. Inorganic lead compounds can cause developmental damage.

## Aspiration Respiratory Organs Hazard

None

## * * * Section 12 - Ecological Information * * *

## Ecotoxicity

### A: General Product Information

Very toxic to aquatic organisms.

### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

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

| Test & Species | Conditions |
|---|---|
| 96 Hr LC50 Morone saxatilis | 13.6 mg/L [static] |
| 96 Hr LC50 Cyprinus carpio | 0.56 mg/L [semi-static] |

**Zinc (7440-66-6)**

| Test & Species | Conditions |
|---|---|
| 96 Hr LC50 Pimephales promelas | 2.16-3.05 mg/L [flow-through] |
| 96 Hr LC50 Pimephales promelas | 0.211-0.269 mg/L [semi-static] |
| 96 Hr LC50 Pimephales promelas | 2.66 mg/L [static] |
| 96 Hr LC50 Cyprinus carpio | 30 mg/L |
| 96 Hr LC50 Cyprinus carpio | 0.45 mg/L [semi-static] |
| 96 Hr LC50 Cyprinus carpio | 7.8 mg/L [static] |
| 96 Hr LC50 Lepomis macrochirus | 3.5 mg/L [static] |
| 96 Hr LC50 Oncorhynchus mykiss | 0.24 mg/L [flow-through] |
| 96 Hr LC50 Oncorhynchus mykiss | 0.59 mg/L [semi-static] |
| 96 Hr LC50 Oncorhynchus mykiss | 0.41 mg/L [static] |
| 96 Hr EC50 Pseudokirchneriella subcapitata | 0.11 - 0.271 mg/L [static] |
| 72 Hr EC50 Pseudokirchneriella subcapitata | 0.09 - 0.125 mg/L [static] |
| 48 Hr EC50 Daphnia magna | 0.139 - 0.908 mg/L [Static] |

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

| Test & Species | Conditions |
|---|---|
| 96 Hr LC50 Brachydanio rerio | >100 mg/L |
| 96 Hr LC50 Cyprinus carpio | 1.3 mg/L [semi-static] |
| 96 Hr LC50 Cyprinus carpio | 10.4 mg/L [static] |
| 72 Hr EC50 Pseudokirchneriella subcapitata | 0.18 mg/L |
| 96 Hr EC50 Pseudokirchneriella subcapitata | 0.174 - 0.311 mg/L [static] |
| 48 Hr EC50 Daphnia magna | >100 mg/L |
| 48 Hr EC50 Daphnia magna | 1 mg/L [Static] |

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

| Test & Species | Conditions |
|---|---|
| 96 Hr LC50 Pimephales promelas | 0.0068 - 0.0156 mg/L |
| 96 Hr LC50 Pimephales promelas | <0.3 mg/L [static] |

| | |
|---|---|
| 96 Hr LC50 Pimephales promelas | 0.2 mg/L [flow-through] |
| 96 Hr LC50 Oncorhynchus mykiss | 0.052 mg/L [flow-through] |
| 96 Hr LC50 Lepomis macrochirus | 1.25 mg/L [static] |
| 96 Hr LC50 Cyprinus carpio | 0.3 mg/L [semi-static] |
| 96 Hr LC50 Cyprinus carpio | 0.8 mg/L [static] |
| 96 Hr LC50 Poecilia reticulata | 0.112 mg/L [flow-through] |
| 72 Hr EC50 Pseudokirchneriella subcapitata | 0.0426 - 0.0535 mg/L [static] |
| 96 Hr EC50 Pseudokirchneriella subcapitata | 0.031 - 0.054 mg/L [static] |
| 48 Hr EC50 Daphnia magna | 0.03 mg/L [Static] |

**Sulfur (7704-34-9)**

| Test & Species | Conditions |
|---|---|
| 96 Hr LC50 Brachydanio rerio | 866 mg/L [static] |
| 96 Hr LC50 Lepomis macrochirus | <14 mg/L [static] |
| 96 Hr LC50 Oncorhynchus mykiss | >180 mg/L [static] |

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

| Test & Species | Conditions |
|---|---|
| 96 Hr LC50 Cyprinus carpio | 0.44 mg/L [semi-static] |
| 96 Hr LC50 Oncorhynchus mykiss | 1.17 mg/L [flow-through] |
| 96 Hr LC50 Oncorhynchus mykiss | 1.32 mg/L [static] |
| 48 Hr EC50 water flea | 600 µg/L |

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

| Test & Species | Conditions |
|---|---|
| 96 Hr LC50 Lepomis macrochirus | 0.0017-0.0035 mg/L [flow-through] |
| 96 Hr LC50 Lepomis macrochirus | 0.001-0.004 mg/L [static] |
| 96 Hr LC50 Brachydanio rerio | >100 mg/L [static] |
| 96 Hr LC50 Oncorhynchus mykiss | 0.015-0.032 mg/L [static] |
| 96 Hr LC50 Pimephales promelas | 0.011-0.028 mg/L [static] |
| 48 Hr EC50 Daphnia magna | 0.03 mg/L |
| 48 Hr EC50 Daphnia magna | 0.025 - 0.037 mg/L [Static] |

## Persistence/Degradability

Metal powders may cause ecological damage through silting or sedimentation effect in water depriving organisms of habitat and mobility, and/or fouling of gills, lungs and skin thus limiting oxygen uptake.

## Bioaccumulation

Metal powders in water or soil may form metal oxides or other metal compounds that could become bioavailable and harm aquatic or terrestrial organisms.

## Mobility in Soil

Metal powder would be relatively immobile in soils but some metal compounds may be transported with ground water.

## * * * Section 13 - Disposal Considerations * * *

### Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

### Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

## * * * Section 14 - Transportation Information * * *

### Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

| Component | CAS # | |
|---|---|---|
| Copper | 7440-50-8 | DOT regulated severe marine pollutant (powder) |

### DOT Information

**Shipping Name:** Not Regulated

### IATA Information

**Shipping Name:** Not Regulated

### ICAO Information

**Shipping Name:** Not Regulated

### IMDG Information

**Shipping Name:** Not Regulated

## * * * Section 15 - Regulatory Information * * *

### Regulatory Information

**A: Component Analysis**

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

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

SARA 313: 1.0 % de minimis concentration

CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

**Zinc (7440-66-6)**

SARA 313: 1.0 % de minimis concentration (dust or fume only)

CERCLA: 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

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

SARA 313: 0.1 % de minimis concentration

CERCLA: 100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

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

SARA 313: 1.0 % de minimis concentration

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

SARA 313: 1.0 % de minimis concentration

CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

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

SARA 313: 1.0 % de minimis concentration (dust or fume only)

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

SARA 313: 0.1 % Supplier notification limit; 0.1 % de minimis concentration (when contained in stainless steel, brass, or bronze)

CERCLA: 10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 4.54 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

**Antimony (7440-36-0)**

CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

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

SARA 302: 100 lb TPQ (This material is a reactive solid. The TPQ does not default to 10000 pounds for non-powder, non-molten, non-solution form)

CERCLA: 1 lb final RQ; 0.454 kg final RQ

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

CERCLA: 100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (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: Component Marine Pollutants**

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

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

0-2.5 DOT regulated severe marine pollutant (powder)

## State Regulations

### A: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

| Component | CAS | CA | MA | MN | NJ | PA | RI |
|---|---|---|---|---|---|---|---|
| Iron | 7439-89-6 | Yes | No | No | No | No | No |
| Chromium | 7440-47-3 | Yes | Yes | Yes | Yes | Yes | Yes |
| Zinc | 7440-66-6 | Yes | Yes | No | Yes | Yes | Yes |
| Nickel | 7440-02-0 | Yes | Yes | Yes | Yes | Yes | Yes |
| Carbon | 7440-44-0 | No | No | No | No | No | Yes |
| Molybdenum | 7439-98-7 | Yes | Yes | Yes | Yes | Yes | Yes |
| Silicon | 7440-21-3 | No | Yes | Yes | Yes | Yes | Yes |
| Manganese | 7439-96-5 | Yes | Yes | Yes | Yes | Yes | Yes |
| Copper | 7440-50-8 | Yes | Yes | Yes | Yes | Yes | Yes |
| Aluminum | 7429-90-5 | Yes | Yes | Yes | Yes | Yes | Yes |
| Sulfur | 7704-34-9 | Yes | Yes | No | Yes | Yes | Yes |
| Vanadium | 7440-62-2 | Yes | Yes | No | Yes | Yes | No |
| Lead | 7439-92-1 | Yes | Yes | Yes | Yes | Yes | No |
| Titanium | 7440-32-6 | Yes | No | No | Yes | No | No |
| Boron | 7440-42-8 | No | No | No | Yes | No | No |
| Magnesium | 7439-95-4 | Yes | Yes | No | Yes | Yes | Yes |
| Tin | 7440-31-5 | Yes | Yes | Yes | Yes | Yes | Yes |
| Tungsten | 7440-33-7 | Yes | Yes | Yes | Yes | Yes | Yes |
| Calcium | 7440-70-2 | Yes | Yes | No | Yes | Yes | Yes |
| Antimony | 7440-36-0 | Yes | Yes | Yes | Yes | Yes | Yes |
| Phosphorus | 7723-14-0 | Yes | Yes | Yes | Yes | Yes | Yes |
| Nitrogen | 7727-37-9 | No | Yes | Yes | Yes | Yes | Yes |
| Selenium | 7782-49-2 | Yes | Yes | No | Yes | Yes | Yes |
| Tellurium | 13494-80-9 | No | Yes | Yes | Yes | Yes | Yes |

**WARNING**:
This product can expose you to a chemical or chemicals such as Chromium, Lead or Nickel which is [are] known to the State of California to cause cancer or birth defects or other reproductive harm.
For more information go to: www.P65Warnings.ca.gov/product

### Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

| Component | CAS # | Minimum Concentration |
|---|---|---|
| Chromium | 7440-47-3 | 0.1 % |
| Nickel | 7440-02-0 | 0.1 % |
| Molybdenum | 7439-98-7 | 1 % |
| Manganese | 7439-96-5 | 1 % |
| Copper | 7440-50-8 | 1 % |
| Aluminum | 7429-90-5 | 1 % |
| Lead | 7439-92-1 | 0.1 % |
| Selenium | 7782-49-2 | 0.1 % |

## Additional Regulatory Information

### Component Analysis - Inventory

| Component | CAS # | TSCA | CAN | EEC |
|---|---|---|---|---|
| Iron | 7439-89-6 | Yes | DSL | EINECS |
| Chromium | 7440-47-3 | Yes | DSL | EINECS |

| | | | | |
|---|---|---|---|---|
| Zinc | 7440-66-6 | Yes | DSL | EINECS |
| Nickel | 7440-02-0 | Yes | DSL | EINECS |
| Carbon | 7440-44-0 | Yes | DSL | EINECS |
| Molybdenum | 7439-98-7 | Yes | DSL | EINECS |
| Silicon | 7440-21-3 | Yes | DSL | EINECS |
| Manganese | 7439-96-5 | Yes | DSL | EINECS |
| Copper | 7440-50-8 | Yes | DSL | EINECS |
| Aluminum | 7429-90-5 | Yes | DSL | EINECS |
| Sulfur | 7704-34-9 | Yes | DSL | EINECS |
| Bismuth | 7440-69-9 | Yes | DSL | EINECS |
| Vanadium | 7440-62-2 | Yes | DSL | EINECS |
| Lead | 7439-92-1 | Yes | DSL | EINECS |
| Titanium | 7440-32-6 | Yes | DSL | EINECS |
| Boron | 7440-42-8 | Yes | DSL | EINECS |
| Magnesium | 7439-95-4 | Yes | DSL | EINECS |
| Niobium | 7440-03-1 | Yes | DSL | EINECS |
| Tin | 7440-31-5 | Yes | DSL | EINECS |
| Tungsten | 7440-33-7 | Yes | DSL | EINECS |
| Calcium | 7440-70-2 | Yes | DSL | EINECS |
| Antimony | 7440-36-0 | Yes | DSL | EINECS |
| Phosphorus | 7723-14-0 | Yes | DSL | EINECS |
| Nitrogen | 7727-37-9 | Yes | DSL | EINECS |
| Selenium | 7782-49-2 | Yes | DSL | EINECS |
| Tellurium | 13494-80-9 | Yes | DSL | EINECS |

## * * * Section 16 - Other Information * * *

### Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

### Literature References

Available on request.

End of Sheet