

**Section 1: Identification of the Substance/Mixture and of the Company/Undertaking****1.1 Product identifier****Product Name** • **Iron-base Alloy and Castings****1.2 Relevant identified uses of the substance or mixture and uses advised against****Relevant identified use(s)** • Aircraft Engine Blades and Vanes Industrial Gas Turbine Components for power generation**1.3 Details of the supplier of the safety data sheet****Manufacturer** • PCC Structural  
4600 SE Harney Drive  
Portland, OR 97206  
United States**1.4 Emergency telephone number****Manufacturer** • 800-424-9300 - CHEMTREC**Section 2: Hazards Identification****EU/EEC**

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]

According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

**2.1 Classification of the substance or mixture**

- CLP**
- Products do not present an inhalation, ingestion or skin contact health hazard under normal handling and use as it is in a metallic form. However, processes such as welding, grinding, burning, melting, or otherwise generating dust, fumes and gases may present a health hazard.  
Acute Toxicity Oral 4 - H302  
Skin Sensitization 1 - H317  
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335  
Carcinogenicity 2 - H351  
Specific Target Organ Toxicity Repeated Exposure 1 - H372  
Specific Target Organ Toxicity Repeated Exposure 2 - H373  
Hazardous to the aquatic environment Chronic 4 - H413
- DSD/DPD**
- Toxic (T)  
Irritant (Xi)  
Harmful (Xn)  
Carcinogenic Substances - Category 3  
R22, R37, R40, R43, R48/23, R53

**2.2 Label Elements****CLP****DANGER**



- Hazard statements**
- H302 - Harmful if swallowed
  - H317 - May cause an allergic skin reaction
  - H335 - May cause respiratory irritation
  - 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.
  - H413 - May cause long lasting harmful effects to aquatic life

**Precautionary statements**

- Prevention**
- P201 - Obtain special instructions before use.
  - P202 - Do not handle until all safety precautions have been read and understood.
  - P260 - Do not breathe dust.
  - P264 - Wash 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 should not be allowed out of the workplace.
  - P273 - Avoid release to the environment.
  - P281 - Use personal protective equipment as required.

- Response**
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  - P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
  - P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
  - P363 - Wash contaminated clothing before reuse.
  - P321 - Specific treatment, see supplemental first aid information.
  - P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
  - P301+P312 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell.
  - P330 - Rinse mouth.
  - P308+P313 - IF exposed or concerned: Get medical advice/attention.

- Storage/Disposal**
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
  - P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

- Supplemental information**
- 34-48 percent of this product consists of an ingredient of unknown toxicity.

**DSD/DPD**



- Risk phrases**
- R22 - Harmful if swallowed.
  - R37 - Irritating to respiratory system.
  - R40 - Limited evidence of a carcinogenic effect.
  - R43 - May cause sensitisation by skin contact.
  - R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation.
  - R53 - May cause long-term adverse effects in the aquatic environment.

- Safety phrases**
- S24 - Avoid contact with skin.
  - S36 - Wear suitable protective clothing.
  - S37 - Wear suitable gloves.
  - S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
  - S53 - Avoid exposure - obtain special instructions before use.

**2.3 Other Hazards**

- CLP • According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.  
DSD/DPD • According to European Directive 1999/45/EC this material is considered dangerous.

## United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

### 2.1 Classification of the substance or mixture

- OSHA HCS 2012
- Acute Toxicity Oral 4
  - Skin Sensitization 1A
  - Respiratory Sensitization 1B
  - Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
  - Carcinogenicity 2
  - Reproductive Toxicity 2
  - Specific Target Organ Toxicity Repeated Exposure 1
  - Specific Target Organ Toxicity Repeated Exposure 2

### 2.2 Label elements

OSHA HCS 2012

#### DANGER



- Hazard statements**
- Harmful if swallowed
  - May cause an allergic skin reaction
  - May cause allergy or asthma symptoms or breathing difficulties if inhaled
  - May cause respiratory irritation
  - Suspected of causing cancer.
  - Suspected of damaging fertility or the unborn child.
  - Causes damage to organs through prolonged or repeated exposure.
  - May cause damage to organs through prolonged or repeated exposure.

#### Precautionary statements

- Prevention**
- Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Do not breathe dust.
  - Wash thoroughly after handling.
  - Do not eat, drink or smoke when using this product.
  - Use only outdoors or in a well-ventilated area.
  - Contaminated work clothing should not be allowed out of the workplace.
  - Wear protective gloves, clothing, and eye/face protection, .
  - In case of inadequate ventilation wear respiratory protection.
- Response**
- **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 or doctor/physician.
  - If on skin: Wash with plenty of water .
  - Wash contaminated clothing before reuse.
  - Specific treatment, see supplemental first aid information.
  - If skin irritation or rash occurs: Get medical advice/attention.
  - **IF SWALLOWED:** Immediately call a POISON CENTER or doctor/physician if you feel unwell.
  - Rinse mouth.
  - IF exposed or concerned: Get medical advice/attention.

- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed.
  - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Supplemental information** • 34-48 percent of this product consists of an ingredient of unknown toxicity.

## 2.3 Other hazards

**OSHA HCS 2012** • Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

## Section 3 - Composition/Information on Ingredients

### 3.1 Substances

• Material does not meet the criteria of a substance.

### 3.2 Mixtures

| Composition   |                                      |               |  |  |          |
|---------------|--------------------------------------|---------------|--|--|----------|
| Chemical Name | Identifiers                          | %             | LD50/LC50                              | Classifications According to Regulation/Directive  | Comments |
| Iron          | CAS:7439-89-6<br>EC Number:231-096-4 | 46% TO<br>66% | Ingestion/Oral-Rat<br>LD50 • 750 mg/kg | <b>EU DSD/DPD:</b> Xn; R22; R53<br><b>EU CLP:</b> Acute Tox. 4, H302; Aquatic Chronic 4, H413<br><b>OSHA HCS 2012:</b> Acute Tox. 4 (orl)  | NDA      |
| Chromium      | CAS:7440-47-3<br>EC Number:231-157-5 | 15% TO<br>26% | NDA                                    | <b>EU DSD/DPD:</b> Xi, R37<br><b>EU CLP:</b> STOT SE 3: Resp. Irrit., H335<br><b>OSHA HCS 2012:</b> STOT SE 3: Resp. Irrit.  | NDA      |
| Nickel        | CAS:7440-02-0<br>EC Number:231-111-4 | 19% TO<br>22% | NDA                                    | <b>EU DSD/DPD:</b> T, R48/23; Xi; R43; Carc. Cat. 3, Xn, R40; R52/53<br><b>EU CLP:</b> Skin Sens. 1, H317; Carc. 2, H351 (Inhl); STOT RE 1, H372 (Lungs; Orl, Dermal, Inhl); Aquatic Chronic 3, H412<br><b>OSHA HCS 2012:</b> Flam. Sol. 1; Comb. Dust; Resp. Sens. 1B; Skin Sens. 1A; Carc. 2 (Inhl); STOT RE 2 (Lungs, Oral, Inhl) | NDA      |
| Molybdenum    | CAS:7439-98-7<br>EC Number:231-107-2 | 0% TO<br>4%   | NDA                                    | <b>EU DSD/DPD:</b> Xi, R36/37/38<br><b>EU CLP:</b> Skin Irrit. 2, H319; Eye Irrit. 2, H315; STOT SE 3: Resp. Irrit., H335<br><b>OSHA HCS 2012:</b> Skin Irrit. 2; Eye Irrit. 2; STOT SE 3: Resp. Irrit.  | NDA      |
| Manganese     | CAS:7439-96-5<br>EC Number:231-105-1 | 0% TO<br>2%   | Ingestion/Oral-Rat<br>LD50 • 9 g/kg    | <b>EU DSD/DPD:</b> T, R48/23; Repr. Cat. 3, R63<br><b>EU CLP:</b> STOT RE 1 (CNS), H372; Repr. 2, H361<br><b>OSHA HCS 2012:</b> Eye Irrit. 2; Repr. 2; STOT RE 1 (CNS)   | NDA      |

See Section 16 for full text of H-statements and R-phrases.

## Section 4 - First Aid Measures

### 4.1 Description of first aid measures

- Inhalation** • Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. If signs/symptoms continue, get medical attention.
- Skin** • In case of contact with substance, immediately flush skin with running water for at least 20 minutes. If skin irritation occurs: Get medical advice/attention.
- Eye** • In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
- Ingestion** • Rinse mouth. Do not give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

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

- Refer to Section 11 - Toxicological Information.

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

- Notes to Physician**
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

---

## Section 5 - Firefighting Measures

### 5.1 Extinguishing media

- Suitable Extinguishing Media**
- Use special mixtures of dry chemical, or sand.

- Unsuitable Extinguishing Media**
- Do not use water.

### 5.2 Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards**
- Solid, massive form of material is not combustible. Fire and explosion hazards are moderate when material is in the form of dust and exposed to heat or flames, or by chemical reaction.

- Hazardous Combustion Products**
- No data available

### 5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

---

## Section 6 - Accidental Release Measures

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

- Personal Precautions**
- Special precautions are not necessary for solid castings. If large quantities of dust are spilled: Ventilate enclosed areas. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

- Emergency Procedures**
- Use normal clean up procedures.

### 6.2 Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

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

- Containment/Clean-up Measures**
- Carefully shovel or sweep up spilled material and place in suitable container. Residues should be evaluated for metal leachability and consignable waste standards. Do not use compressed air for cleanup.

### 6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

---

## Section 7 - Handling and Storage

### 7.1 Precautions for safe handling

- Handling**
- Use only with adequate ventilation. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe dust or fumes. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

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

- Storage**
- Store in a cool, dry place. Keep away from incompatible materials.

### 7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

## Section 8 - Exposure Controls/Personal Protection

### 8.1 Control parameters

| Exposure Limits/Guidelines          |          |   |  |   |   |  |
|-------------------------------------|----------|---|--|---|---|--|
|                                     | Result   | ACGIH   | Europe   | France  | Germany DFG   | Germany TRGS   |
| Manganese<br>(7439-96-5)            | TWAs     | 0.02 mg/m <sup>3</sup> TWA (respirable fraction);<br>0.1 mg/m <sup>3</sup> TWA (inhalable fraction) | Not established  | 1 mg/m <sup>3</sup> TWA [VME] (fume, as Mn)                                   | Not established   | 0.5 mg/m <sup>3</sup> TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, inhalable fraction) |
|                                     | Ceilings | Not established   | Not established  | Not established   | 1.6 mg/m <sup>3</sup> Peak (Ceiling factor 1 for Permanganates, inhalable fraction);<br>0.16 mg/m <sup>3</sup> Peak (Ceiling factor 1 for Permanganates, respirable fraction) | Not established  |
|                                     | MAKs     | Not established   | Not established  | Not established   | 0.2 mg/m <sup>3</sup> TWA MAK (inhalable fraction); 0.02 mg/m <sup>3</sup> TWA MAK (respirable fraction)  | Not established  |
| Molybdenum<br>(7439-98-7)           | TWAs     | 10 mg/m <sup>3</sup> TWA (inhalable fraction); 3 mg/m <sup>3</sup> TWA (respirable fraction)        | Not established  | Not established   | Not established   | Not established  |
| Chromium<br>(7440-47-3)             | TWAs     | 0.5 mg/m <sup>3</sup> TWA   | 2 mg/m <sup>3</sup> TWA  | 2 mg/m <sup>3</sup> TWA [VME] (indicative limit)                              | Not established   | 2 mg/m <sup>3</sup> TWA AGW (inhalable fraction, exposure factor 1)  |
| Nickel<br>(7440-02-0)               | TWAs     | 1.5 mg/m <sup>3</sup> TWA (inhalable fraction)  | Not established  | 1 mg/m <sup>3</sup> TWA [VME]; 1 mg/m <sup>3</sup> TWA [VME] (metal gratings) | Not established   | Not established  |
| Exposure Limits/Guidelines (Con't.) |          |   |  |   |   |  |
|                                     | Result   | Italy   | Mexico   | NIOSH   | OSHA  | United Kingdom   |
| Manganese<br>(7439-96-5)            | STELs    | Not established   | 3 mg/m <sup>3</sup> STEL [LMPE-CT] (fume, as Mn)                                   | 3 mg/m <sup>3</sup> STEL  | Not established   | 1.5 mg/m <sup>3</sup> STEL (calculated)  |
|                                     | TWAs     | Not established   | 0.2 mg/m <sup>3</sup> TWA LMPE-PPT; 1 mg/m <sup>3</sup> TWA LMPE-PPT (fume, as Mn) | 1 mg/m <sup>3</sup> TWA (fume)  | Not established   | 0.5 mg/m <sup>3</sup> TWA (as Mn)  |
|                                     | Ceilings | Not established   | Not established  | Not established   | 5 mg/m <sup>3</sup> Ceiling (fume)  | Not established  |
| Chromium<br>(7440-47-3)             | TWAs     | 0.5 mg/m <sup>3</sup> TWA   | 0.5 mg/m <sup>3</sup> TWA LMPE-PPT   | 0.5 mg/m <sup>3</sup> TWA   | 1 mg/m <sup>3</sup> TWA   | 0.5 mg/m <sup>3</sup> TWA  |
|                                     | STELs    | Not established   | Not established  | Not established   | Not established   | 1.5 mg/m <sup>3</sup> STEL (calculated)  |
| Nickel<br>(7440-02-0)               | TWAs     | Not established   | 1 mg/m <sup>3</sup> TWA LMPE-PPT   | 0.015 mg/m <sup>3</sup> TWA   | 1 mg/m <sup>3</sup> TWA   | 0.5 mg/m <sup>3</sup> TWA  |
|                                     | STELs    | Not established   | Not established  | Not established   | Not established   | 1.5 mg/m <sup>3</sup> STEL (calculated)  |

### Exposure Control Notations

#### United Kingdom

- Nickel (7440-02-0): **Skin:** (Potential for cutaneous absorption)

**France**

•Nickel (7440-02-0): **Carcinogens:** (Carcinogen category 2)

**ACGIH**

•Nickel (7440-02-0): **Carcinogens:** (A5 - Not Suspected as a Human Carcinogen)

•Manganese (7439-96-5): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

•Chromium (7440-47-3): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

**Germany DFG**

•Nickel (7440-02-0): **Carcinogens:** (Category 1 (causes cancer in man)) | **Sensitizers:** (respiratory and skin sensitizer (inhalable fraction, respiratory sensitization confirmed for water soluble Nickel compounds only))

•Manganese (7439-96-5): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to (inhalable fraction, respirable fraction))

**Exposure Limits Supplemental****ACGIH**

•Nickel (7440-02-0): **TLV Basis - Critical Effects:** (dermatitis; pneumoconiosis)

•Manganese (7439-96-5): **TLV Basis - Critical Effects:** (CNS impairment)

•Chromium (7440-47-3): **TLV Basis - Critical Effects:** (skin and upper respiratory tract irritation)

**8.2 Exposure controls****Engineering****Measures/Controls**

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment).

**Personal Protective Equipment****Respiratory**

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

**Eye/Face**

- Wear safety goggles.

**Hands**

- Wear appropriate gloves.

**Skin/Body**

- Wear long sleeves and/or protective coveralls.

**Environmental**

- Follow best practice for site management and disposal of waste.

**Exposure Controls****Key to abbreviations**

ACGIH = American Conference of Governmental Industrial Hygiene

BEI = Biological Exposure Indices

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

TLV = Threshold Limit Value determined by the American Conference of Governmental Industrial Hygienists (ACGIH)

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

**Section 9 - Physical and Chemical Properties****9.1 Information on Physical and Chemical Properties**

| <b>Material Description</b>       |  |                              |                    |
|-----------------------------------|--|------------------------------|--------------------|
| Physical Form                     | Solid  | Appearance/Description       | Solid metal alloy. |
| Color                             | Data lacking                                 | Odor                         | Data lacking       |
| Odor Threshold                    | Data lacking                                 |                              |                    |
| <b>General Properties</b>         |  |                              |                    |
| Boiling Point                     | 2800 C(5072 F)<br>(for nickel, alloys lower) | Melting Point/Freezing Point | 1452 C(2645.6 F)   |
| Decomposition Temperature         | Data lacking                                 | pH                           | Data lacking       |
| Specific Gravity/Relative Density | 7.7 to 9.2 Water=1                           | Water Solubility             | Negligible < 0.1 % |
| Viscosity                         | Data lacking                                 | Explosive Properties         | Data lacking       |

|                                     |              |               |              |
|-------------------------------------|--------------|---------------|--------------|
| Oxidizing Properties:               | Data lacking |               |              |
| <b>Volatility</b>                   |              |               |              |
| Vapor Pressure                      | Data lacking | Vapor Density | Data lacking |
| Evaporation Rate                    | Data lacking |               |              |
| <b>Flammability</b>                 |              |               |              |
| Flash Point                         | Data lacking | UEL           | Data lacking |
| LEL                                 | Data lacking | Autoignition  | Data lacking |
| Flammability (solid, gas)           | Data lacking |               |              |
| <b>Environmental</b>                |              |               |              |
| Octanol/Water Partition coefficient | Data lacking |               |              |

## 9.2 Other Information

- No additional physical and chemical parameters noted.

## Section 10: Stability and Reactivity

### 10.1 Reactivity

- Molten metal reacts violently with water. Store away from oxidizers, can react violently.

### 10.2 Chemical stability

- Stable under normal temperatures and pressures.

### 10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

### 10.4 Conditions to avoid

- Avoid generating dust.

### 10.5 Incompatible materials

- Material may be incompatible with acids, bases, and oxidizers.

### 10.6 Hazardous decomposition products

- No data available

## Section 11 - Toxicological Information

### 11.1 Information on toxicological effects

|                       |           | Components  |
|-----------------------|-----------|---|
| Nickel (19% TO 22%)   | 7440-02-0 | <b>Acute Toxicity:</b> Ingestion/Oral-Rat TDLo • 200 mg/kg; <i>Nutritional and Gross Metabolic:</i> Gross Metabolite Changes: <b>Weight loss or decreased weight gain</b> ; <i>Behavioral:</i> <b>Somnolence (general depressed activity)</b> ;<br><b>Multi-dose Toxicity:</b> Ingestion/Oral-Mouse TDLo • 500 mg/kg 5 Day(s)-Intermittent; <i>Lungs, Thorax, or Respiration:</i> <b>Fibrosis, focal (pneumoconiosis)</b> ; <i>Related to Chronic Data:</i> <b>Death in the Other Multiple Dose data type field</b> ; Inhalation-Rabbit TCLo • 1 mg/m <sup>3</sup> 6 Hour(s) 13 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:</i> <b>Other changes</b> ; <i>Lungs, Thorax, or Respiration:</i> <b>Changes in lung weight</b> ;<br><i>Blood:</i> <b>Hemorrhage</b> ; Inhalation-Rat TCLo • 0.4 mg/m <sup>3</sup> 40 Week(s)-Intermittent; <i>Vascular:</i> <b>Thrombosis distant from injection site</b> ; <i>Lungs, Thorax, or Respiration:</i> <b>Other changes</b> ; <i>Related to Chronic Data:</i> <b>Death in the Other Multiple Dose data type field</b> ;<br><b>Reproductive:</b> Ingestion/Oral-Rat TDLo • 158 mg/kg (multigenerations); <i>Reproductive Effects:</i> <i>Effects on Embryo or Fetus:</i> <b>Fetotoxicity (except death, e.g., stunted fetus)</b> ; <i>Reproductive Effects:</i> <i>Effects on Embryo or Fetus:</i> <b>Fetal death</b> ;<br><b>Tumorigen / Carcinogen:</b> Inhalation-Guinea Pig TCLo • 15 mg/m <sup>3</sup> 91 Week(s)-Intermittent;<br><i>Tumorigenic:</i> <b>Equivocal tumorigenic agent by RTECS criteria</b> ; <i>Lungs, Thorax, or Respiration:</i> <b>Tumors</b> ; <i>Lungs, Thorax, or Respiration:</i> <b>Bronchiogenic carcinoma</b> |
| Manganese (0% TO 2%)  | 7439-96-5 | <b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 9 g/kg;<br><b>Irritation:</b> Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;<br><b>Reproductive:</b> Ingestion/Oral-Rat TDLo • 90 mg/kg (18D post); <i>Reproductive Effects:</i> <i>Effects on Newborn:</i> <b>Growth statistics (e.g., reduced weight gain)</b> ; <i>Reproductive Effects:</i> <i>Effects on Newborn:</i> <b>Biochemical and metabolic</b> ; <i>Reproductive Effects:</i> <i>Effects on Newborn:</i> <b>Other postnatal measures or effects</b>   |
| Molybdenum (0% TO 4%) | 7439-98-7 | <b>Reproductive:</b> Ingestion/Oral-Rat TDLo • 5800 µg/kg (30W pre/1-20D preg); <i>Reproductive Effects:</i> <i>Specific Developmental Abnormalities:</i> <b>Musculoskeletal system</b>   |



|                   |           |   |
|-------------------|-----------|---|
| Iron (46% TO 66%) | 7439-89-6 | <b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 750 mg/kg; <b>Blood:Changes in serum composition (e.g., TP, bilirubin cholesterol); Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Transaminases;</b> Ingestion/Oral-Child TDLo • 77 mg/kg; <b>Behavioral:Irritability;</b> <b>Gastrointestinal:Nausea or vomiting;</b> <b>Blood:Normocytic anemia;</b><br><b>Multi-dose Toxicity:</b> Ingestion/Oral-Rat TDLo • 105 mg/kg 5 Week(s)-Continuous; <b>Liver:Tumors;</b><br><b>Tumorigenic:Active as anti-cancer agent;</b> <b>Tumorigenic:Protects against induction of experimental tumors</b> |
|-------------------|-----------|---|

| GHS Properties                | Classification  |
|-------------------------------|---|
| Respiratory sensitization     | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Respiratory Sensitizer 1B  |
| Serious eye damage/Irritation | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking   |
| Acute toxicity                | <b>EU/CLP</b> •Acute Toxicity - Oral 4 - ATEmix (oral) = 750 mg/kg<br><b>OSHA HCS 2012</b> •Acute Toxicity - Oral 4 - ATEmix (oral) = 750 mg/kg   |
| Aspiration Hazard             | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking   |
| Carcinogenicity               | <b>EU/CLP</b> •Carcinogenicity 2<br><b>OSHA HCS 2012</b> •Carcinogenicity 2   |
| Skin corrosion/Irritation     | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking   |
| Skin sensitization            | <b>EU/CLP</b> •Skin Sensitizer 1<br><b>OSHA HCS 2012</b> •Skin Sensitizer 1A  |
| STOT-RE                       | <b>EU/CLP</b> •Specific Target Organ Toxicity Repeated Exposure 1; Specific Target Organ Toxicity Repeated Exposure 2<br><b>OSHA HCS 2012</b> •Specific Target Organ Toxicity Repeated Exposure 1; Specific Target Organ Toxicity Repeated Exposure 2 |
| STOT-SE                       | <b>EU/CLP</b> •Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation<br><b>OSHA HCS 2012</b> •Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation   |
| Toxicity for Reproduction     | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Toxic to Reproduction 2  |
| Germ Cell Mutagenicity        | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking   |

## Potential Health Effects

### Inhalation

#### Acute (Immediate)

- May cause respiratory irritation. Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

#### Chronic (Delayed)

- May cause allergy or asthma symptoms or breathing difficulties if inhaled. Extended exposure to excessive concentrations of metal fumes and dusts can be associated with permanent changes in the lung function and pulmonary diseases.

### Skin

#### Acute (Immediate)

- Exposure to dust may cause mechanical irritation. May cause skin sensitization. Symptoms include redness, and skin rash.

#### Chronic (Delayed)

- No data available.

### Eye

#### Acute (Immediate)

- Exposure to dust may cause mechanical irritation. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.

#### Chronic (Delayed)

- No data available.

## Ingestion

**Acute (Immediate)** • Harmful if swallowed. Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

**Chronic (Delayed)** • No data available

## Other

**Chronic (Delayed)** • Prolonged or repeated exposure to manganese can cause Manganism (Parkinson like disease).

**Carcinogenic Effects** • Repeated and prolonged exposure may cause cancer.

| Carcinogenic Effects |           |                              |   |
|----------------------|-----------|------------------------------|---|
|                      | CAS       | IARC                         | NTP   |
| Nickel               | 7440-02-0 | Group 2B-Possible Carcinogen | Reasonably Anticipated to be Human Carcinogen |

**Reproductive Effects** • Repeated and prolonged exposure may cause reproductive effects.

### Key to abbreviations

LD = Lethal Dose

TC = Toxic Concentration

TD = Toxic Dose

## Section 12 - Ecological Information

### 12.1 Toxicity

| Iron-base Alloy and Castings |  |            |         |                     |                    |
|------------------------------|--|------------|---------|---------------------|--------------------|
| Dosage                       | Species  | Duration   | Results | Exposure Conditions | Comments           |
| 0.06 mg/L                    | <b>Fish:</b> Oncorhynchus mykiss (Rainbow Trout)                       | 96 Hour(s) | LC50    | NDA                 | Nickel (7440-02-0) |
| 0.233 mg/L                   | <b>Aquatic Plant(s):</b> Pseudokirchneriella subcapitata (Green Algae) | 96 Hour(s) | EC50    | NDA                 | Nickel (7440-02-0) |
| 0.0035 µg/L                  | <b>Fish:</b> Cyprinus carpio (Common Carp)                             | 28 Day(s)  | NOEC    | NDA                 | Nickel (7440-02-0) |
| 0.231 mg/L                   | <b>Crustacea:</b> Americamysis bahia (Opossum Shrimp)                  | 7 Day(s)   | NOEC    | NDA                 | Nickel (7440-02-0) |
| 0.00648 mg/L                 | <b>Fish:</b> Mudskipper(Periophthalmus waltoni)                        | 96 Hour(s) | LC50    | NDA                 | Iron (7439-89-6)   |
| 0.305 mg/L                   | <b>Fish:</b> Brown Trout (Salmo trutta)                                | 7 Day(s)   | NOEC    | NDA                 | Iron (7439-89-6)   |
| 0.5 mg/L                     | <b>Crustacea:</b> Aquatic Sowbug, Isopod(Idotea balthica)              | 7 Day(s)   | NOEC    | NDA                 | Iron (7439-89-6)   |

• May cause long lasting harmful effects to aquatic life.

### 12.2 Persistence and degradability

• Material Data Lacking.

### 12.3 Bioaccumulative potential

• Material Data Lacking.

### 12.4 Mobility in Soil

• Material Data Lacking.

### 12.5 Results of PBT and vPvB assessment

• No PBT and vPvB assessment has been conducted.

### 12.6 Other adverse effects

• Metal castings do not present any ecological danger to the environment. The by-products formed through processing metal castings may cause adverse effects in the environment if released directly to the environment. Heavy metals may be present and can enter into biological pathways.

## Section 13 - Disposal Considerations

### 13.1 Waste treatment methods

**Product waste** • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Packaging waste** • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

## Section 14 - Transport Information

|           | 14.1 UN number | 14.2 UN proper shipping name | 14.3 Transport hazard class(es) | 14.4 Packing group | 14.5 Environmental hazards |
|-----------|----------------|------------------------------|---------------------------------|--------------------|----------------------------|
| DOT       | NDA            | Not Regulated                | NDA                             | NDA                | NDA                        |
| IMO/IMDG  | NDA            | Not Regulated                | NDA                             | NDA                | NDA                        |
| IATA/ICAO | NDA            | Not Regulated                | NDA                             | NDA                | NDA                        |

**14.6 Special precautions for user**

• None specified.

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** • Data lacking.

## Section 15 - Regulatory Information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**SARA Hazard Classifications**

• Acute, Chronic

| State Right To Know |           |     |     |     |
|---------------------|-----------|-----|-----|-----|
| Component           | CAS       | MA  | NJ  | PA  |
| Chromium            | 7440-47-3 | Yes | Yes | Yes |
| Iron                | 7439-89-6 | No  | No  | No  |
| Manganese           | 7439-96-5 | Yes | Yes | Yes |
| Molybdenum          | 7439-98-7 | Yes | Yes | Yes |
| Nickel              | 7440-02-0 | Yes | Yes | Yes |

| Inventory  |           |           |           |      |
|------------|-----------|-----------|-----------|------|
| Component  | CAS       | EU EINECS | EU ELNICS | TSCA |
| Chromium   | 7440-47-3 | Yes       | No        | Yes  |
| Iron       | 7439-89-6 | Yes       | No        | Yes  |
| Manganese  | 7439-96-5 | Yes       | No        | Yes  |
| Molybdenum | 7439-98-7 | Yes       | No        | Yes  |
| Nickel     | 7440-02-0 | Yes       | No        | Yes  |

### Europe

#### Other

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification**

|             |           |                               |
|-------------|-----------|-------------------------------|
| •Chromium   | 7440-47-3 | Not Listed                    |
| •Manganese  | 7439-96-5 | Not Listed                    |
| •Molybdenum | 7439-98-7 | Not Listed                    |
| •Nickel     | 7440-02-0 | Carc.Cat.3; R40 R43 T; R48/23 |
| •Iron       | 7439-89-6 | Not Listed                    |

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits**

|           |           |            |
|-----------|-----------|------------|
| •Chromium | 7440-47-3 | Not Listed |
|-----------|-----------|------------|

|  |           |                                   |
|--|-----------|-----------------------------------|
| •Manganese   | 7439-96-5 | Not Listed                        |
| •Molybdenum  | 7439-98-7 | Not Listed                        |
| •Nickel  | 7440-02-0 | Not Listed                        |
| •Iron  | 7439-89-6 | Not Listed                        |
| <b>EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling</b>                           |           |                                   |
| •Chromium  | 7440-47-3 | Not Listed                        |
| •Manganese   | 7439-96-5 | Not Listed                        |
| •Molybdenum  | 7439-98-7 | Not Listed                        |
| •Nickel  | 7440-02-0 | T R:40-43-48/23 S:(2)-36/37/39-45 |
| •Iron  | 7439-89-6 | Not Listed                        |
| <b>EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations</b> |           |                                   |
| •Chromium  | 7440-47-3 | Not Listed                        |
| •Manganese   | 7439-96-5 | Not Listed                        |
| •Molybdenum  | 7439-98-7 | Not Listed                        |
| •Nickel  | 7440-02-0 | S, 7                              |
| •Iron  | 7439-89-6 | Not Listed                        |
| <b>EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases</b>                      |           |                                   |
| •Chromium  | 7440-47-3 | Not Listed                        |
| •Manganese   | 7439-96-5 | Not Listed                        |
| •Molybdenum  | 7439-98-7 | Not Listed                        |
| •Nickel  | 7440-02-0 | S:(2)-36/37/39-45                 |
| •Iron  | 7439-89-6 | Not Listed                        |

## United States

### Labor

#### U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |
| •Iron       | 7439-89-6 | Not Listed |

#### U.S. - OSHA - Specifically Regulated Chemicals

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |
| •Iron       | 7439-89-6 | Not Listed |

### Environment

#### U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |
| •Iron       | 7439-89-6 | Not Listed |

#### U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

|             |           |  |
|-------------|-----------|--|
| •Chromium   | 7440-47-3 | 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) |
| •Manganese  | 7439-96-5 | Not Listed   |
| •Molybdenum | 7439-98-7 | Not Listed   |
| •Nickel     | 7440-02-0 | 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)  |

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)

|   |           |   |
|---|-----------|---|
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities</b>   |           |   |
| •Chromium   | 7440-47-3 | Not Listed  |
| •Manganese  | 7439-96-5 | Not Listed  |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | Not Listed  |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs</b>  |           |   |
| •Chromium   | 7440-47-3 | Not Listed  |
| •Manganese  | 7439-96-5 | Not Listed  |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | Not Listed  |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs</b>   |           |   |
| •Chromium   | 7440-47-3 | Not Listed  |
| •Manganese  | 7439-96-5 | Not Listed  |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | Not Listed  |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - CERCLA/SARA - Section 313 - Emission Reporting</b>  |           |   |
| •Chromium   | 7440-47-3 | 1.0 % de minimis concentration                                |
| •Manganese  | 7439-96-5 | 1.0 % de minimis concentration                                |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | 0.1 % de minimis concentration                                |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing</b>  |           |   |
| •Chromium   | 7440-47-3 | Not Listed  |
| •Manganese  | 7439-96-5 | Not Listed  |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | Not Listed  |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - Basis for Listing - Appendix VII</b>  |           |   |
| •Chromium   | 7440-47-3 | Included in waste streams: F032, F034, F035, F037, F038, F039 |
| •Manganese  | 7439-96-5 | Not Listed  |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | Included in waste streams: F006, F039                         |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - Constituents for Detection Monitoring</b>                                   |           |   |
| •Chromium   | 7440-47-3 | (total)   |
| •Manganese  | 7439-96-5 | Not Listed  |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | (total)   |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Toxic Characteristic</b> |           |   |
| •Chromium   | 7440-47-3 | 5.0 mg/L regulatory level                                     |
| •Manganese  | 7439-96-5 | Not Listed  |
| •Molybdenum   | 7439-98-7 | Not Listed  |
| •Nickel   | 7440-02-0 | Not Listed  |
| •Iron   | 7439-89-6 | Not Listed  |
| <b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261</b>                    |           |   |
| •Chromium   | 7440-47-3 | hazardous constituent - no waste number                       |
| •Manganese  | 7439-96-5 | Not Listed  |

|  |           |  |
|--|-----------|--|
| •Molybdenum  | 7439-98-7 | Not Listed   |
| •Nickel  | 7440-02-0 | hazardous constituent - no waste number                              |
| •Iron  | 7439-89-6 | Not Listed   |
| <b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - List for Hazardous Constituents</b>                  |           |  |
| •Chromium  | 7440-47-3 | (total)  |
| •Manganese   | 7439-96-5 | Not Listed   |
| •Molybdenum  | 7439-98-7 | Not Listed   |
| •Nickel  | 7440-02-0 | (total)  |
| •Iron  | 7439-89-6 | Not Listed   |
| <b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards</b> |           |  |
| •Chromium  | 7440-47-3 | 2.77 mg/L (total, wastewater); 0.60 mg/L TCLP (total, nonwastewater) |
| •Manganese   | 7439-96-5 | Not Listed   |
| •Molybdenum  | 7439-98-7 | Not Listed   |
| •Nickel  | 7440-02-0 | 3.98 mg/L (wastewater); 11.0 mg/L TCLP (nonwastewater)               |
| •Iron  | 7439-89-6 | Not Listed   |
| <b>U.S. - RCRA (Resource Conservation &amp; Recovery Act) - TSD Facilities Ground Water Monitoring</b>           |           |  |
| •Chromium  | 7440-47-3 | (total)  |
| •Manganese   | 7439-96-5 | Not Listed   |
| •Molybdenum  | 7439-98-7 | Not Listed   |
| •Nickel  | 7440-02-0 | (total)  |
| •Iron  | 7439-89-6 | Not Listed   |

## United States - California

### Environment

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

|             |           |   |
|-------------|-----------|---|
| •Chromium   | 7440-47-3 | Not Listed                                  |
| •Manganese  | 7439-96-5 | Not Listed                                  |
| •Molybdenum | 7439-98-7 | Not Listed                                  |
| •Nickel     | 7440-02-0 | carcinogen, initial date 10/1/89 (metallic) |
| •Iron       | 7439-89-6 | Not Listed                                  |

#### U.S. - California - Proposition 65 - Developmental Toxicity

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |
| •Iron       | 7439-89-6 | Not Listed |

#### U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |
| •Iron       | 7439-89-6 | Not Listed |

#### U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |
| •Iron       | 7439-89-6 | Not Listed |

#### U.S. - California - Proposition 65 - Reproductive Toxicity - Female

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |
| •Iron       | 7439-89-6 | Not Listed |

#### U.S. - California - Proposition 65 - Reproductive Toxicity - Male

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 | Not Listed |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 | Not Listed |

•Iron

7439-89-6 Not Listed

## United States - Pennsylvania

### Labor

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

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 |            |
| •Manganese  | 7439-96-5 |            |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 |            |
| •Iron       | 7439-89-6 | Not Listed |

#### U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

|             |           |            |
|-------------|-----------|------------|
| •Chromium   | 7440-47-3 |            |
| •Manganese  | 7439-96-5 | Not Listed |
| •Molybdenum | 7439-98-7 | Not Listed |
| •Nickel     | 7440-02-0 |            |
| •Iron       | 7439-89-6 | Not Listed |

## 15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

## 15.3 Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer.

## Section 16 - Other Information

### Relevant Phrases (code & full text)

- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H361 - Suspected of damaging fertility or the unborn child.
- H412 - Harmful to aquatic life with long lasting effects
- R36/37/38 - Irritating to eyes, respiratory system and skin.
- R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R63 - Possible risk of harm to the unborn child.

### Revision Date

- 13/August/2015

### Preparation Date

- 01/January/1993

### Key to abbreviations

NDA = No Data Available

### Disclaimer/Statement of Liability

- Although reasonable care has been taken to provide current and accurate information herein, PCC Airfoils, LLC extends no warranties, expressed or implied, makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury of any kind which may result from or arise out of the use of or reliance on the information by any person. Responsibility for the compliance with federal, state, and local law and regulations concerning the use of this product rests solely upon the purchaser.