1. Identification

Product identifier: Electro Galvanized Carbon Steel
Other means of identification:
- SDS number: WS011
- Recommended use: Not available.
- Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier: The Worthington Steel Company
Address: 200 Old Wilson Bridge Road, Columbus, OH 43085, United States
Email: steel@worthingtonindustries.com
Telephone Number: 800-944-3733
CHEMTREC - 24 HOURS: Within US: 800-424-9300 International: +1 703-741-5970 (collect calls accepted)

2. Hazard(s) identification

Physical hazards: Not classified.
Health hazards: Not classified.
OSHA defined hazards: Not classified.

Label elements

Hazard symbol: None.
Signal word: None.
Hazard statement: None.

Precautionary statement

Prevention: Observe good industrial hygiene practices.
Response: Wash thoroughly after handling.
Storage: Store away from incompatible materials.
Disposal: Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC): Molten material will produce thermal burns.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td></td>
<td>7439-89-6</td>
<td>&gt;90</td>
</tr>
<tr>
<td>Manganese</td>
<td></td>
<td>7439-96-5</td>
<td>0-1.0</td>
</tr>
<tr>
<td>Carbon</td>
<td></td>
<td>7440-44-0</td>
<td>0-0.6</td>
</tr>
<tr>
<td>Chromium</td>
<td></td>
<td>7440-47-3</td>
<td>0-0.5</td>
</tr>
<tr>
<td>Silicon</td>
<td></td>
<td>7440-21-3</td>
<td>0-0.4</td>
</tr>
<tr>
<td>Nickel</td>
<td></td>
<td>7440-02-0</td>
<td>0-0.15</td>
</tr>
<tr>
<td>Aluminium</td>
<td></td>
<td>7429-90-5</td>
<td>0-0.1</td>
</tr>
<tr>
<td>Chemical name</td>
<td>CAS number</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Molybdenum</td>
<td>7439-98-7</td>
<td>0-0.1</td>
<td></td>
</tr>
<tr>
<td>Titanium</td>
<td>7440-32-6</td>
<td>0-0.1</td>
<td></td>
</tr>
<tr>
<td>Sulfur</td>
<td>7704-34-9</td>
<td>0-0.05</td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td>7723-14-0</td>
<td>0-0.04</td>
<td></td>
</tr>
<tr>
<td>Boron</td>
<td>7440-42-8</td>
<td>0-0.02</td>
<td></td>
</tr>
<tr>
<td>Vanadium</td>
<td>7440-62-2</td>
<td>0-0.02</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>0-0.01</td>
<td></td>
</tr>
</tbody>
</table>

**Metallic Coating**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>0.05 - 0.5</td>
</tr>
</tbody>
</table>

**Composition comments**

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

**4. First-aid measures**

**Inhalation**
Contact with dust or fume: Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

**Skin contact**
Wash with soap and water. Get medical attention if irritation develops and persists. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Seek medical attention for severe cuts or abrasions.

**Eye contact**
Contact with dust: Immediately rinse mouth and drink a cupful of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. Only induce vomiting at the instruction of medical personnel. Get medical attention immediately.

**Ingestion**
Dust and fumes may irritate eyes, skin and upper respiratory tract. Contact with molten material may cause thermal burns.

**Most important symptoms/effects, acute and delayed**
Treat symptomatically. Exposure may aggravate pre-existing respiratory disorders. Symptoms may be delayed.

**Indication of immediate medical attention and special treatment needed**
Show this safety data sheet to the doctor in attendance.

**General information**

**5. Fire-fighting measures**

**Suitable extinguishing media**
Extinguish with foam, carbon dioxide or dry powder.

**Unsuitable extinguishing media**
Do not use water or halogenated extinguishing media.

**Specific hazards arising from the chemical**
Fire or high temperatures create: Metal oxides.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Move containers from fire area if you can do it without risk.

**General fire hazards**
Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Avoid inhalation of dust from the spilled material. Wear protective clothing as described in Section 8 of this SDS. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

**Methods and materials for containment and cleaning up**
Pick up mechanically. For a dry material spill, use a HEPA (high efficiency particle air) vacuum to collect material and place in a sealable container for disposal. Avoid dust formation. Recover and recycle, if practical. Keep out of water supplies and sewers.
Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water. If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. Handling and storage

Precautions for safe handling

Wear appropriate personal protective equipment (See Section 8). Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Avoid inhalation of dust and fumes. Avoid contact with skin and eyes. Avoid contact with sharp edges and hot surfaces. Do not get this material on clothing. Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Follow the recommendations in ANSI Z49.1, Safety in welding and cutting (ANSI=American National Standard Institute). Steel products are massive and care must be taken to prevent them from falling, rolling or tipping on objects in their path.

Conditions for safe storage, including any incompatibilities

Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
</tbody>
</table>

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium (CAS 7429-90-5)</td>
<td>PEL</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m3</td>
</tr>
<tr>
<td>Chromium (CAS 7440-47-3)</td>
<td>PEL</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>Ceiling</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td>Molybdenum (CAS 7439-98-7)</td>
<td>PEL</td>
<td>15 mg/m3</td>
</tr>
<tr>
<td>Nickel (CAS 7440-02-0)</td>
<td>PEL</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td>Phosphorus (CAS 7723-14-0)</td>
<td>PEL</td>
<td>0.1 mg/m3</td>
</tr>
<tr>
<td>Silicon (CAS 7440-21-3)</td>
<td>PEL</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m3</td>
</tr>
</tbody>
</table>

US. OSHA Table Z-3 (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon (CAS 7440-44-0)</td>
<td>TWA</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m3</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium (CAS 7429-90-5)</td>
<td>TWA</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td>Carbon (CAS 7440-44-0)</td>
<td>TWA</td>
<td>2 mg/m3</td>
</tr>
<tr>
<td>Chromium (CAS 7440-47-3)</td>
<td>TWA</td>
<td>0.5 mg/m3</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
<tr>
<td>Nickel (CAS 7440-02-0)</td>
<td>TWA</td>
<td>1.5 mg/m3</td>
</tr>
<tr>
<td>Phosphorus (CAS 7723-14-0)</td>
<td>TWA</td>
<td>0.1 mg/m3</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium (CAS 7429-90-5)</td>
<td>TWA</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m3</td>
</tr>
<tr>
<td>Carbon (CAS 7440-44-0)</td>
<td>TWA</td>
<td>10 mg/m3</td>
</tr>
<tr>
<td>Chromium (CAS 7440-47-3)</td>
<td>TWA</td>
<td>2.5 mg/m3</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m3</td>
</tr>
</tbody>
</table>

Electro Galvanized Carbon Steel SDS US 927938 Version #: 01 Revision date: - Issue date: 01-June-2015
US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Nickel (CAS 7440-02-0)</td>
<td>TWA</td>
<td>0.015 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Phosphorus (CAS 7723-14-0)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon (CAS 7440-21-3)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³</td>
<td>Total</td>
</tr>
<tr>
<td>Vanadium (CAS 7440-62-2)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Biological limit values
ACGIH Biological Exposure Indices

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>300 µg/l</td>
<td>Lead</td>
<td>Blood</td>
<td>*</td>
</tr>
</tbody>
</table>

* - For sampling details, please see the source document.

Exposure guidelines

Appropriate engineering controls
Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Keep melting/soldering temperatures as low as possible to minimize the generation of fume. Shower, hand and eye washing facilities near the workplace are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles). Wear a face shield when working with molten material.

Skin protection
Hand protection
Wear protective gloves (i.e. latex, nitrile, neoprene).

Other
Chemical resistant clothing is recommended.

Respiratory protection
Use a respirator when local exhaust or ventilation is not adequate to keep exposures below the OEL. In a confined space a supplied respirator may be required. Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

Thermal hazards
Heat resistant/insulated gloves and clothing are recommended when working with molten material.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance
Shiny metallic solid.

Physical state
Solid.

Form
Solid.

Color
Not available.

Odor
Odorless.

Odor threshold
Not available.

pH
Not applicable.

Melting point/freezing point
2400 - 2800 °F (1315.56 - 1537.78 °C) Base metal
800 - 900 °F (426.67 - 482.22 °C) Coating

Initial boiling point and boiling range
Not applicable.

Flash point
Not applicable.

Evaporation rate
Not available.

Flammability (solid, gas)
Not available.

Upper/lower flammability or explosive limits
Flammability limit - lower (%)
Not applicable.
Flammability limit - upper (%): Not applicable.
Explosive limit - lower (%): Not available.
Explosive limit - upper (%): Not available.

Vapor pressure: Not applicable.
Vapor density: Not applicable.
Relative density: 7.5 - 8.5
Solubility(ies):
   Solubility (water): Not soluble in water.
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature: Not applicable.
Decomposition temperature: Not available.
Viscosity: Not available.

Other information:
   Percent volatile: 0

10. Stability and reactivity
Reactivity: The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: Hazardous polymerization does not occur.
Conditions to avoid: Contact with incompatible materials. Avoid molten metal contact with water.
Hazardous decomposition products: Toxic metal oxides are emitted when heated above the melting point.

11. Toxicological information
Information on likely routes of exposure
   Inhalation: Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract. Lung damage and possible pulmonary edema can result from dust exposure. Inhalation of fumes may cause a flu-like illness called metal fume fever.
   Skin contact: Dust may irritate skin. Contact with molten material may cause thermal burns.
   Eye contact: Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye.
   Ingestion: Ingestion of dusts generated during working operations may cause nausea and vomiting.

Symptoms related to the physical, chemical and toxicological characteristics:
Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Contact with molten material may cause thermal burns.

Information on toxicological effects:
Acute toxicity: When heated, the vapors/fumes given off may cause respiratory tract irritation. High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever.

Components | Species | Test Results
--- | --- | ---
Aluminium (CAS 7429-90-5) Acute Inhalation LC50 Rat | > 0.888 mg/l, 4 Hours
Acute Oral LD50 Rat | 9 g/kg
<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boron (CAS 7440-42-8)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 650 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carbon (CAS 7440-44-0)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50 &gt; 2000 mg/m³, 4 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Iron (CAS 7439-89-6)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50 &gt; 100 mg/m³, 6 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 &gt; 5 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 98.6 g/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Manganese (CAS 7439-96-5)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50/LC90 &gt; 1500 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 9000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nickel (CAS 7440-02-0)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 &gt; 9000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Silicon (CAS 7440-21-3)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 3150 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sulfur (CAS 7704-34-9)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 &gt; 2000 mg/kg, 24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50 &gt; 5.43 g/m³, 4 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 &gt; 2200 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Metallic Coating</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Zinc (CAS 7440-66-6)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50 5410 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Dust may irritate skin.</td>
<td></td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye.</td>
<td></td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>No sensitizing effects known.</td>
<td></td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Prolonged contact with metallic dust or fumes may cause an allergic skin reaction in sensitized individuals.</td>
<td></td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>No data available.</td>
<td></td>
</tr>
</tbody>
</table>
Carcinogenicity
Suspected of causing cancer. The International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) and OSHA do not list steel products as carcinogens. Steel products contain alloying elements and/or residual elements that are suspected or confirmed human carcinogens (e.g., chromium, nickel). IARC identifies welding fumes as a group 2B carcinogen, a mixture that is possibly carcinogenic to humans. Welding fumes are difficult to classify because the composition and quantity are dependent upon the alloy being welded, electrodes used, and process.

IARC Monographs. Overall Evaluation of Carcinogenicity
Chromium (CAS 7440-47-3) 3 Not classifiable as to carcinogenicity to humans.
Lead (CAS 7439-92-1) 2B Possibly carcinogenic to humans.
Nickel (CAS 7440-02-0) 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens
Lead (CAS 7439-92-1) Reasonably Anticipated to be a Human Carcinogen.
Nickel (CAS 7440-02-0) Reasonably Anticipated to be a Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Reproductive toxicity
Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure
May cause irritation of respiratory tract.

Specific target organ toxicity - repeated exposure
Causes damage to organs () through prolonged or repeated exposure.

Aspiration hazard
Not relevant, due to the form of the product.

Chronic effects
Prolonged and repeated overexposure to dust can lead to benign pneumoconiosis. Chronic exposure to breathing low levels of manganese dust or fume over a long period of time can result in “manganism,” a disease of the central nervous system similar to Parkinson’s Disease, gait impairment, muscle spasms and behavioral changes.

Further information
Steel products may be coated with oil based products to prevent rust. Rust preventive oils are generally applied at customer request and usually contains severely hydrotreated light and heavy naphthenic oils. Prolonged contact with rust preventive oil may cause dermatitis.

12. Ecological information
Ecotoxicity
Alloys in massive forms present a limited hazard for the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorus (CAS 7723-14-0)</td>
<td>Aquatic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crustacea</td>
<td>EC50 Water flea (Daphnia magna)</td>
</tr>
<tr>
<td></td>
<td>Fish</td>
<td>LC50 Bluegill (Lepomis macrochirus)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic Coating</td>
<td>Species</td>
<td>Test Results</td>
</tr>
<tr>
<td>Zinc (CAS 7440-66-6)</td>
<td>Aquatic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fish</td>
<td>LC50 Rainbow trout, donaldson trout</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Oncorhynchus mykiss)</td>
</tr>
</tbody>
</table>

Persistence and degradability
The product is not biodegradable.

Bioaccumulative potential
No data available.

Mobility in soil
Alloys in massive forms are not mobile in the environment.

Other adverse effects
None expected.

13. Disposal considerations
Disposal instructions
Dispose in accordance with all applicable regulations.

Local disposal regulations
Dispose of in accordance with local regulations.

Hazardous waste code
Not regulated.

Waste from residues / unused products
Dispose of in accordance with local regulations. Scrapped material should be sent for refining to recover precious metal content. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied.
14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

15. Regulatory information

US federal regulations
This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Lead (CAS 7439-92-1) Reproductive toxicity
Central nervous system
Kidney
Blood
Acute toxicity

CERCLA Hazardous Substance List (40 CFR 302.4)
Chromium (CAS 7440-47-3) LISTED
Lead (CAS 7439-92-1) LISTED
Manganese (CAS 7439-96-5) LISTED
Nickel (CAS 7440-02-0) LISTED
Phosphorus (CAS 7723-14-0) LISTED
Zinc (CAS 7440-66-6) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Reportable quantity (pounds)</th>
<th>Threshold planning quantity, lower value (pounds)</th>
<th>Threshold planning quantity, upper value (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorus</td>
<td>7723-14-0</td>
<td>1</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese</td>
<td>7439-96-5</td>
<td>0.1</td>
</tr>
<tr>
<td>Nickel</td>
<td>7440-02-0</td>
<td>0.15</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Chromium (CAS 7440-47-3)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Nickel (CAS 7440-02-0)
Phosphorus (CAS 7723-14-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Not regulated.

US state regulations

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List
Aluminium (CAS 7429-90-5)
Chromium (CAS 7440-47-3)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Molybdenum (CAS 7439-98-7)
Nickel (CAS 7440-02-0)
Phosphorus (CAS 7723-14-0)
Silicon (CAS 7440-21-3)
Sulfur (CAS 7704-34-9)
Vanadium (CAS 7440-62-2)
Zinc (CAS 7440-66-6)

US. New Jersey Worker and Community Right-to-Know Act
Aluminium (CAS 7429-90-5)
Boron (CAS 7440-42-8)
Carbon (CAS 7440-44-0)
Chromium (CAS 7440-47-3)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Molybdenum (CAS 7439-98-7)
Nickel (CAS 7440-02-0)
Phosphorus (CAS 7723-14-0)
Silicon (CAS 7440-21-3)
Sulfur (CAS 7704-34-9)
Titanium (CAS 7440-32-6)
Vanadium (CAS 7440-62-2)
Zinc (CAS 7440-66-6)

US. Pennsylvania Worker and Community Right-to-Know Law
Aluminium (CAS 7429-90-5)
Chromium (CAS 7440-47-3)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Molybdenum (CAS 7439-98-7)
Nickel (CAS 7440-02-0)
Phosphorus (CAS 7723-14-0)
Silicon (CAS 7440-21-3)
Sulfur (CAS 7704-34-9)
Vanadium (CAS 7440-62-2)
Zinc (CAS 7440-66-6)

US. Rhode Island RTK
Aluminium (CAS 7429-90-5)
Chromium (CAS 7440-47-3)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Molybdenum (CAS 7439-98-7)
Nickel (CAS 7440-02-0)
Phosphorus (CAS 7723-14-0)
Silicon (CAS 7440-21-3)
Sulfur (CAS 7704-34-9)
Vanadium (CAS 7440-62-2)
Zinc (CAS 7440-66-6)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Lead (CAS 7439-92-1)
Nickel (CAS 7440-02-0)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
</tbody>
</table>
Country(s) or region | Inventory name | On inventory (yes/no)
--- | --- | ---
China | Inventory of Existing Chemical Substances in China (IECSC) | Yes
Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes
Europe | European List of Notified Chemical Substances (ELINCS) | No
Japan | Inventory of Existing and New Chemical Substances (ENCS) | No
Korea | Existing Chemicals List (ECL) | Yes
New Zealand | New Zealand Inventory | Yes
Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes
United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes

*A “Yes” indicates this product complies with the inventory requirements administered by the governing country(s). A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date | 01-June-2015
Revision date | -
Version # | 01

Further information | HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings | Health: 1*
Flammability: 0
Physical hazard: 0

NFPA ratings

References
ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer
All information in this Material Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user’s responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.