1. Identification

1.1. Product identifier

Product Identity: Nickel Bare Wire & Strip

Alternate Names: Midalloy ERNi-1, ERNiCr-3, ERNiCrMo-3, ERNiCrMo-4, ERNiCrMo-10, ERNiCu-7, ERCuNi, ERNiCrCoMo-1, ERNi-Cl, ERNiFe-Ci, ERNiFeMn-CI, ERNiFeCr-2, EQNi-1, EQNiCr-3, EQNiCrMo-3, EQNiCrMo-4, EQNiCu-7, EQCuNi, L605

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use: See Technical Data Sheet.

Application Method: See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name: Midalloy

630 Axminster Drive

St. Louis, MO 63026

Emergency

24 hour Emergency Telephone No.: (636) 349-6000

Customer Service: Midalloy (800) 776-3300

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Acute Tox. 5;H303: May be harmful if swallowed. (Not adopted by US OSHA)

Eye Irrit. 2;H319: Causes serious eye irritation.

Skin Sens. 1;H317: May cause an allergic skin reaction.

Resp. Sens. 1;H334: May cause allergy or asthma symptoms of breathing difficulties if inhaled.

Carc. 2;H351: Suspected of causing cancer.

STOT RE 1;H372: Causes damage to organs through prolonged or repeated exposure. Specific Target Organs: (lungs )

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Danger

H303 May be harmful if swallowed.

H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H334 May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.

[Prevention]:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust / fume / gas / mist / vapors / spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves / eye protection / face protection.
P285 In case of inadequate ventilation wear respiratory protection.

[Response]:
P302+352 IF ON SKIN: Wash with plenty of soap and water.
P304+312 IF INHALED: Call a POISON CENTER or doctor / physician if you feel unwell.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P308+313 IF exposed or concerned: Get medical advice / attention.
P314 Get Medical advice / attention if you feel unwell.
P321 Specific treatment (see information on this label).
P333+313 If skin irritation or a rash occurs: Get medical advice / attention.
P337+313 If eye irritation persists: Get medical advice / attention.
P341 If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342+311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor / physician.
P363 Wash contaminated clothing before reuse.

[Storage]:
P405 Store locked up.

[Disposal]:
P501 Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

<table>
<thead>
<tr>
<th>Ingredient/Chemical Designations</th>
<th>Weight %</th>
<th>GHS Classification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>0007440-02-0</td>
<td>50 - 100</td>
<td>Carc. 2;H351 STOT RE 1;H372 Skin Sens. 1;H317 Aquatic Chronic 3;H412 [1][2]</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>0007439-98-7</td>
<td>10 - 25</td>
<td>Not Classified</td>
</tr>
<tr>
<td>Copper</td>
<td>10 - 25</td>
<td>Not Classified</td>
<td>[1][2]</td>
</tr>
</tbody>
</table>
## Safety Data Sheet
### Nickel Bare Wire & Strip

**SDS Revision Date:** 09/23/2016

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Concentration</th>
<th>Health Effects</th>
<th>Classification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium compounds (as Cr (III))</td>
<td>10 - 25</td>
<td>Skin Sens. 1; Resp. Sens. 1; Eye Irrit. 2; Aquatic Chronic 4</td>
<td>[1][2]</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>10 - 25</td>
<td>Not Classified</td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Niobium</td>
<td>1 - 5</td>
<td>Not Classified</td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tungsten</td>
<td>1 - 5</td>
<td>Flam. Sol. 1; SelfHeat. 2</td>
<td>[1][2]</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manganese compounds (as Mn)</td>
<td>1 - 5</td>
<td>Not Classified</td>
<td>[1][2]</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Titanium</td>
<td>1 - 5</td>
<td>Not Classified</td>
<td>[1]</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum (Al)</td>
<td>1 - 5</td>
<td>Pyr. Sol. 1; WaterReact. 2</td>
<td>[1][2]</td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

[1] Substance classified with a health or environmental hazard.
*The full texts of the phrases are shown in Section 16.

### 4. First aid measures

#### 4.1. Description of first aid measures

**General**
In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

**Inhalation**
Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

**Eyes**
Immediately flush the eyes with large amounts of water for at least 15 minutes, alternately lifting the upper and lower eyelids. After 5 minutes, if appropriate, remove contact lenses and continue flushing the eyes for an additional 15 minutes. Call a physician at once.

**Skin**
Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

**Ingestion**
Do not induce vomiting. Get medical attention.

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

**Overview**
Inhalation: Inhalation of dust may cause respiratory irritation. Chromium and certain compounds of chromium have been reported to cause damage to the lungs, resulting in cumulative damage.

Ingestion: May cause gastric disturbances.

Skin: May cause sensitization on repeated contact. Dermatitis has been reported from repeated contact with chromium compounds.

Eyes: Contact may cause irritation.

Possible cancer hazard. Contains an ingredient which may cause cancer based on animal data (See Section 3 and Section 15 for each ingredient). Risk of cancer depends on duration and level of exposure.
Electric arc welding may create one or more of the following health hazards:
Fumes and gases can be dangerous to your health.
Arc rays can injure eyes and burn skin.
Electric shock can kill.

See section 2 for further details.

Inhalation
May cause allergy or asthma symptoms of breathing difficulties if inhaled.

Eyes
Causes serious eye irritation.

Skin
May cause an allergic skin reaction.

Ingestion
May be harmful if swallowed.

Chronic effects
Effects of Overexposure: Fumes and gases can be dangerous to your health.
Short-Term (Acute) Exposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes.
Long-Term (Chronic) Overexposure may lead to siderosis (iron deposits in the lung) and is believed by some investigators to affect pulmonary function.

5. Fire-fighting measures

5.1. Extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition: Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded and the process, procedures and electrodes used. Other conditions which influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), number of welds and volume of work area, quality and amount of ventilation, position of welder’s head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products are different in percent and form from the ingredients listed in Section 3. Fume and gas decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3 plus those from base metal, coating, etc. as noted above. These components are virtually always present as complex compounds and not as metals (Characterization of Arc Welding Fume; American Welding Society).

Reasonable expected fume constituents from these products would include fluorides and complex oxides of iron, manganese, and silicon and when present, nickel chromium, molybdenum and copper.
Gaseous reaction products may include carbon monoxide and carbon dioxide.
Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder’s helmet, if worn, or in the worker’s breathing zone. ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.
Avoid breathing dust / fume / gas / mist / vapors / spray.

5.3. Advice for fire-fighters
Welding arc and sparks can ignite combustibles and flammables. Refer to American National Standard Z49.1 for fire prevention during the use of welding and allied procedures.

ERG Guide No. ----
6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use exhaust system to clear welding fumes. Make sure that inhaled air does not contain fume constituents above permissible exposure levels.

NOTE: for additional safety information see American Standard Z49.1-1983, Safety in Welding and Cutting, and the Welding Handbook, both available from AWS, Inc., 550 N.W. LeJeune Rd., P.O. Box 351040, Miami, FL 33135, Phone (305) 443-9353.

6.2. Environmental precautions
Do not allow spills to enter drains or waterways.
Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up
Prevent waste from contaminating surrounding environment. Discard any product residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations.

7. Handling and storage

7.1. Precautions for safe handling
See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities
Handle containers carefully to prevent damage and spillage.
Incompatible materials: No data available.
See section 2 for further details. - [Storage]:

7.3. Specific end use(s)
No data available.

8. Exposure controls and personal protection

8.1. Control parameters
Exposure

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Ingredient</th>
<th>Source</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0007429-90-5</td>
<td>Aluminum (Al)</td>
<td>OSHA</td>
<td>TWA 15 mg/m³ (total) TWA 5 mg/m³ (resp)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>TWA: 1.0 mg/m³ Revised 2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH</td>
<td>TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supplier</td>
<td>No Established Limit</td>
</tr>
<tr>
<td>0007439-89-6</td>
<td>Iron</td>
<td>OSHA</td>
<td>No Established Limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>No Established Limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH</td>
<td>No Established Limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supplier</td>
<td>No Established Limit</td>
</tr>
</tbody>
</table>
## Carcinogen Data

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Ingredient</th>
<th>Source</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0007429-90-5</td>
<td>Aluminum (Al)</td>
<td>OSHA</td>
<td>Select Carcinogen: No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NTP</td>
<td>Known: No; Suspected: No</td>
</tr>
</tbody>
</table>

**Safety Data Sheet**  
**Nickel Bare Wire & Strip**  

**SDS Revision Date:** 09/23/2016

- **Manganese compounds (as Mn)**
  - **OSHA:** C 5 mg/m³ *See specific listings for specific compounds.*
  - **ACGIH:** TWA: 0.2 mg/m³
  - **NIOSH:** TWA 1 mg/m³ ST 3 mg/m³ *See specific listings for specific compounds.*
  - **Supplier:** No Established Limit

- **Molybdenum**
  - **OSHA:** TWA 15 mg/m³ [*Note: The PEL also applies to other insoluble molybdenum compounds (as Mo).]*
  - **ACGIH:** TWA: 0.5 mg/m³ (soluble) TWA: 3 mg/m³ (insoluble respirable) 10 mg/m³ (insoluble inhalable)
  - **NIOSH:** No established RELs
  - **Supplier:** No Established Limit

- **Nickel**
  - **OSHA:** TWA 1 mg/m³ [*Note: The PEL does not apply to Nickel carbonyl.]*
  - **ACGIH:** Insoluble TWA: 0.05 mg/m³ A1, 1, (I) Soluble TWA: 0.05 mg/m³ A1, 1, 2B, (I)
  - **NIOSH:** Ca TWA 0.015 mg/m³ [*Note: The REL does not apply to Nickel carbonyl.]*
  - **Supplier:** No Established Limit

- **Niobium**
  - **OSHA:** No Established Limit
  - **ACGIH:** No Established Limit
  - **NIOSH:** No Established Limit
  - **Supplier:** No Established Limit

- **Titanium**
  - **OSHA:** No Established Limit
  - **ACGIH:** No Established Limit
  - **NIOSH:** No Established Limit
  - **Supplier:** No Established Limit

- **Tungsten**
  - **OSHA:** No Established Limit
  - **ACGIH:** TWA: 1 mg/m³ (soluble) 5 mg/m³ (insoluble) STEL: 3 mg/m³ (soluble) 10 mg/m³ (insoluble)
  - **NIOSH:** TWA 5 mg/m³ ST 10 mg/m³ [*Note: The REL also applies to other insoluble tungsten compounds (as W).]*
  - **Supplier:** No Established Limit

- **Chromium compounds (as Cr (III))**
  - **OSHA:** TWA 1 mg/m³ [*Note: The PEL also applies to insoluble chromium salts.]*
  - **ACGIH:** TWA: 0.5 mg/m³ (III)
  - **NIOSH:** TWA 0.5 mg/m³
  - **Supplier:** No Established Limit

- **Copper**
  - **OSHA:** TWA 1 mg/m³ [*Note: The PEL also applies to other copper compounds (as Cu) except copper fume.*]
  - **ACGIH:** TWA: 0.2 mg/m³ (fume) 1 mg/m³ (dusts and mists)
  - **NIOSH:** TWA 1 mg/m³ [*Note: The REL also applies to other copper compounds (as Cu) except Copper fume.*]
  - **Supplier:** No Established Limit

**Page 6 of 13**
## 8.2. Exposure controls

### Respiratory

Use respirable fume respiratory or air supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below the recommended exposure limit.

### Eyes

Wear helmet or use face shield with filter lens. Provide protective screens and flash goggles, if necessary, to shield others. As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to the next lighter shade, which gives sufficient view of the weld zone.

### Skin

Wear hand, head, and body protection, which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z49.1. At a minimum this includes welder’s gloves and a protective face shield, and may include arm protectors, aprons hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

### Engineering Controls

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases from the worker’s breathing zone and the general area. Train the welder to keep his head out of the fumes.
Other Work Practices
Read and understand the manufacturer’s instructions and the precautionary label on the product. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid</td>
</tr>
<tr>
<td>Odor</td>
<td>Not Specified</td>
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<tr>
<td>Odor threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>pH</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Evaporation rate (Ether = 1)</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Lower Explosive Limit: Not Measured</td>
</tr>
<tr>
<td></td>
<td>Upper Explosive Limit: Not Measured</td>
</tr>
<tr>
<td>Vapor pressure (Pa)</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (Log Kow)</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not Measured</td>
</tr>
<tr>
<td>Viscosity (cSt)</td>
<td>Not Measured</td>
</tr>
</tbody>
</table>

9.2. Other information
No other relevant information.

10. Stability and reactivity

10.1. Reactivity
Hazardous Polymerization will not occur.

10.2. Chemical stability
Stable under normal circumstances.

10.3. Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
No data available.

10.5. Incompatible materials
No data available.
10.6. Hazardous decomposition products
Welding fumes cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded and the process, procedures and electrodes used. Other conditions which influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), number of welds and volume of work area, quality and amount of ventilation, position of welder’s head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

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Reasonable expected fume constituents from these products would include fluorides and complex oxides of iron, manganese, and silicon and when present, nickel chromium, molybdenum and copper. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder’s helmet, if worn, or in the worker’s breathing zone. ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

11. Toxicological information

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Oral LD50, mg/kg</th>
<th>Skin LD50, mg/kg</th>
<th>Inhalation Vapor LC50, mg/L/4hr</th>
<th>Inhalation Dust/Mist LC50, mg/L/4hr</th>
<th>Inhalation Gas LC50, ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel - (7440-02-0)</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Molybdenum - (7439-98-7)</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Copper - (7440-50-8)</td>
<td>2,500.00, Rat - Category: 5</td>
<td>&gt;2,000.00, Rat - Category: 5</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Chromium compounds (as Cr (III)) - (7440-47-3)</td>
<td>422.00, Rat - Category: 5</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Iron - (7439-89-6)</td>
<td>30,000.00, Rat - Category: NA</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Niobium - (7440-03-1)</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
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<tr>
<td>Tungsten - (7440-33-7)</td>
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<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Manganese compounds (as Mn) - (7439-96-5)</td>
<td>9,000.00, Rat - Category: NA</td>
<td>500.00, Rabbit - Category: 3</td>
<td>19.00, Rat - Category: 4</td>
<td>No data available</td>
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<tr>
<td>Titanium - (7440-32-6)</td>
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<td>No data available</td>
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<td>No data available</td>
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<tr>
<td>Aluminum (Al) - (7429-90-5)</td>
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<td>No data available</td>
<td>No data available</td>
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</tr>
</tbody>
</table>
Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
<th>Hazard Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>5</td>
<td>May be harmful if swallowed. (Not adopted by US OSHA)</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>2</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>1</td>
<td>May cause allergy or asthma symptoms of breathing difficulties if inhaled.</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>1</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>2</td>
<td>Suspected of causing cancer.</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>1</td>
<td>Causes damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

12. Ecological information

12.1. Toxicity
The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and GHS and is not classified as dangerous for the environment, but contains substance(s) dangerous for the environment. See section 3 for details

Aquatic Ecotoxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>96 hr LC50 fish, mg/l</th>
<th>48 hr EC50 crustacea, mg/l</th>
<th>ErC50 algae, mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel - (7440-02-0)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Molybdenum - (7439-98-7)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Copper - (7440-50-8)</td>
<td>0.0103, Pimephales promelas</td>
<td>0.0025, Daphnia magna</td>
<td>0.018 (72 hr), Pseudokirchneriella subcapitata</td>
</tr>
<tr>
<td>Chromium compounds (as Cr (III)) - (7440-47-3)</td>
<td>77.50, Pimephales promelas</td>
<td>1.20, Daphnia magna</td>
<td>580.00 (72 hr), Chlorella pyrenoidosa</td>
</tr>
<tr>
<td>Iron - (7439-89-6)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Niobium - (7440-03-1)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Tungsten - (7440-33-7)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Manganese compounds (as Mn) - (7439-96-5)</td>
<td>40.00, Daphnia magna</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>
12.2. Persistence and degradability
There is no data available on the preparation itself.

12.3. Bioaccumulative potential
Not Measured

12.4. Mobility in soil
No data available.

12.5. Results of PBT and vPvB assessment
This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects
No data available.

13. Disposal considerations

13.1. Waste treatment methods
Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

14.1. UN number
DOT (Domestic Surface Transportation) Not Applicable
IMO / IMDG (Ocean Transportation) Not Regulated
ICAO/IATA Not Regulated

14.2. UN proper shipping name
Not Regulated
Not Regulated
Not Regulated

14.3. Transport hazard class(es)
DOT Hazard Class: Not Applicable
IMDG: Not Applicable
Sub Class: Not Applicable
Air Class: Not Applicable

14.4. Packing group
Not Applicable
Not Applicable
Not Applicable

14.5. Environmental hazards
IMDG Marine Pollutant: No
Not Applicable
Not Applicable

14.6. Special precautions for user
No further information

15. Regulatory information

Regulatory Overview
The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA)
All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification
D2A
US EPA Tier II Hazards

- Fire: No
- Sudden Release of Pressure: No
- Reactive: No
- Immediate (Acute): Yes
- Delayed (Chronic): Yes

EPCRA 311/312 Chemicals and RQs (lbs):

- Chromium compounds (as Cr (III)) (5,000.00)
- Copper (5,000.00)
- Nickel (100.00)

EPCRA 302 Extremely Hazardous:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

- Aluminum (Al)
- Chromium compounds (as Cr (III))
- Copper
- Manganese compounds (as Mn)
- Nickel

Proposition 65 - Carcinogens (>0.0%):

- Nickel

Proposition 65 - Developmental Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

- Aluminum (Al)
- Chromium compounds (as Cr (III))
- Copper
- Manganese compounds (as Mn)
- Molybdenum
- Nickel
- Titanium
- Tungsten

Pennsylvania RTK Substances (>1%):
16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H228 Flammable solid.
H250 Catches fire spontaneously if exposed to air.
H252 Self-heating in large quantities; may catch fire.
H261 In contact with water releases flammable gases.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H334 May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.
H413 May cause long lasting harmful effects to aquatic life.

Midalloy believes that the information contained in this SDS is accurate. However, Midalloy does not express or imply any warranty with respect to this information.

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