SAFETY DATA SHEET
CircuitWorks® Nickel Conductive Pen

Section 1. Identification

GHS product identifier : CircuitWorks® Nickel Conductive Pen
Product code : CW2000
Other means of identification : Electrical conductive agents
Product type : Solid.

Relevant identified uses of the substance or mixture and uses advised against
Not applicable.

Supplier's details : Chemtronics
8125 Cobb Center Drive
Kennesaw, GA 30152
Tel. 770-424-4888 or toll free 800-645-5244

Emergency telephone number (with hours of operation) : Chemtrec - 1-800-424-9300 or collect 703-527-3887
24/7

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : ACUTE TOXICITY (inhalation) - Category 3
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 2
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 62.5%

GHS label elements
Hazard pictograms :

Signal word : Danger
Hazard statements : Toxic if inhaled.
Causes serious eye irritation.
Causes skin irritation.
Suspected of causing cancer.

Precautionary statements
Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Use only outdoors or in a well-ventilated area. Avoid breathing dust. Wash hands thoroughly after handling.
Response : IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persist: Get medical attention.
Storage : Store locked up.

Date of issue/Date of revision : 1/15/2019
Date of previous issue : 1/15/2019
Version : 3
Section 2. Hazards identification

**Disposal**
- Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazards not otherwise classified**
- None known.

Section 3. Composition/information on ingredients

**Substance/mixture**
- Mixture

**Other means of identification**
- Electrical conductive agents

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>≥50 - ≤75</td>
<td>7440-02-0</td>
</tr>
<tr>
<td>2-butoxyethyl acetate</td>
<td>≥10 - ≤25</td>
<td>112-07-2</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>≥10 - ≤25</td>
<td>123-86-4</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

**Occupational exposure limits**, if available, are listed in Section 8.

Section 4. First aid measures

**Description of necessary first aid measures**

**Eye contact**
- Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

**Inhalation**
- Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Skin contact**
- Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion**
- Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: Harmful by inhalation.
- **Skin contact**: Harmful May cause skin irritation.
- **Ingestion**: May be irritating to mouth, throat and stomach.

**Over-exposure signs/symptoms**

Date of issue/Date of revision : 1/15/2019  Date of previous issue : 1/15/2019  Version : 3
Section 4. First aid measures

**Eye contact**
- Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

**Inhalation**
- Adverse symptoms may include the following:
  - dizziness/vertigo
  - drowsiness/fatigue
  - headache
  - respiratory tract irritation
  - nausea or vomiting

**Skin contact**
- Adverse symptoms may include the following:
  - irritation
  - redness
  - cracking
  - dryness
  - sensitizer

**Ingestion**
- Adverse symptoms may include the following:
  - central nervous system depression

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to physician**
- In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments**
- No specific treatment.

**Protection of first-aiders**
- No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing media**
- Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**
- None known.

**Specific hazards arising from the chemical**
- No specific fire or explosion hazard.

**Hazardous thermal decomposition products**
- Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
  - nitrogen oxides
  - metal oxide/oxides

**Special protective actions for fire-fighters**
- Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters**
- Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill: Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits
## Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>ACGIH TLV (United States, 3/2015). TWA: 1.5 mg/m³ 8 hours. Form: Inhalable fraction</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2013). Notes: as Ni TWA: 0.015 mg/m³, (as Ni) 10 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 2/2013). Notes: as Ni TWA: 1 mg/m³, (as Ni) 8 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL 1989 (United States, 3/1989). Notes: as Ni TWA: 1 mg/m³, (as Ni) 8 hours.</td>
</tr>
<tr>
<td>2-butoxyethyl acetate</td>
<td>ACGIH TLV (United States, 3/2015). TWA: 20 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2013). TWA: 33 mg/m³ 10 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 2/2013). TWA: 5 ppm 10 hours.</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>ACGIH TLV (United States, 3/2015). STEL: 200 ppm 15 minutes. TWA: 150 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2013). STEL: 950 mg/m³ 15 minutes. TWA: 710 mg/m³ 10 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 2/2013). STEL: 950 mg/m³ 15 minutes. TWA: 150 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL 1989 (United States, 3/1989). STEL: 950 mg/m³ 15 minutes. TWA: 710 mg/m³ 10 hours.</td>
</tr>
</tbody>
</table>

### Appropriate engineering controls
- Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

### Environmental exposure controls
- Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures
- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection
- Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

#### Skin protection

---

*Date of issue/Date of revision*: 1/15/2019  
*Date of previous issue*: 1/15/2019  
*Version*: 3
Section 8. Exposure controls/personal protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance
- Physical state: Solid. [Paste.]
- Color: Silver.
- Odor: Hydrocarbon.
- Odor threshold: Not available.
- pH: Not available.
- Melting point: Not available.
- Boiling point: Not available.
- Flash point: Closed cup: 23 to 37.8°C (73.4 to 100°F) [Tagliabue.]
- Evaporation rate: <1 (butyl acetate = 1)
- Flammability (solid, gas): Not available.
- Lower and upper explosive (flammable) limits: Not available.
- Vapor pressure: Not available.
- Vapor density: Not available.
- Relative density: Not available.
- Solubility: Not available.
- Solubility in water: Not available.
- Partition coefficient: n-octanol/water: Not available.
- Auto-ignition temperature: Not available.
- Decomposition temperature: Not available.
- Viscosity: Not available.
- Flow time (ISO 2431): Not available.

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid: No specific data.
Section 10. Stability and reactivity

Incompatible materials: No specific data.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethyl acetate</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>1500 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>2400 mg/kg</td>
<td></td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>390 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>&gt;17600 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>10768 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethyl acetate</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>OSHA</th>
<th>IARC</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>-</td>
<td>2B</td>
<td>Reasonably anticipated to be a human carcinogen.</td>
</tr>
</tbody>
</table>

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

Potential acute health effects

Date of issue/Date of revision: 1/15/2019
Date of previous issue: 1/15/2019
Version: 3

7/13
Section 11. Toxicological information

**Eye contact**: Causes serious eye irritation.

**Inhalation**: Harmful by inhalation.

**Skin contact**: Harmful. May cause skin irritation.

**Ingestion**: May be irritating to mouth, throat and stomach.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Eye contact**: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

**Inhalation**: Adverse symptoms may include the following:
- dizziness/vertigo
- drowsiness/fatigue
- headache
- respiratory tract irritation
- nausea or vomiting

**Skin contact**: Adverse symptoms may include the following:
- irritation
- redness
- cracking
- dryness
- sensitizer

**Ingestion**: Adverse symptoms may include the following:
- central nervous system depression

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure**
- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Long term exposure**
- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Potential chronic health effects**
- Not available.

**General**: No known significant effects or critical hazards.

**Carcinogenicity**: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity**: No known significant effects or critical hazards.

**Teratogenicity**: No known significant effects or critical hazards.

**Developmental effects**: No known significant effects or critical hazards.

**Fertility effects**: No known significant effects or critical hazards.

**Numerical measures of toxicity**

**Acute toxicity estimates**

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>8181.8 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>5113.6 mg/kg</td>
</tr>
<tr>
<td>Inhalation (gases)</td>
<td>1329.5 ppm</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 1/15/2019
Date of previous issue: 1/15/2019
Version: 3
Section 12. Ecological information

Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>Acute EC50 2 ppm Marine water</td>
<td>Algae - Macrocystis pyriforma - Young</td>
<td>4 days</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 450 µg/l Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
<td>4 days</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 1000 µg/l Marine water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute IC50 0.31 mg/l Marine water</td>
<td>Crustaceans - Americamysis</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 47.5 µg/L Fresh water</td>
<td>bahia - Juvenile (Fledgling, Hatchling, Weanling)</td>
<td></td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>Chronic NOEC 100 mg/l Marine water</td>
<td>Fish - Heteropneustes fossilis</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 3.5 µg/l Fresh water</td>
<td>Algae - Glenodinium halli</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 62000 µg/l</td>
<td>Fish - Cyprinus carpio</td>
<td>4 weeks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fish - Danio rerio</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability

Not available.

Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethyl acetate</td>
<td>1.51</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>2.3</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in soil

| Soil/water partition coefficient (K<sub>oc</sub>) | Not available. |

Other adverse effects

: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

<table>
<thead>
<tr>
<th>UN number</th>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1263</td>
<td>PAINT</td>
<td>PAINT</td>
<td>PAINT</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 1/15/2019  Date of previous issue: 1/15/2019  Version: 3  9/13
# Section 14. Transport information

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th>ORM-D</th>
<th>ORM-D</th>
<th>ORM-D</th>
<th>3</th>
<th>3</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Additional information</td>
<td>Reportable quantity</td>
<td>200 lbs / 90.8 kg</td>
<td>The classification of the product is due solely to the presence of one or more US DOT-listed ‘Hazardous substances’ that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials.</td>
<td>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9), 2.7 (Marine pollutant mark). Non-bulk packages of this product are not regulated as dangerous goods when transported by road or rail.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Special precautions for user**: Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL and the IBC Code**: Not available.
Section 15. Regulatory information

U.S. Federal regulations:
- TSCA 8(a) PAIR: 2-methoxy-1-methylethyl acetate
- TSCA 8(a) CDR Exempt/Partial exemption: Not determined
- United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: Nickel
Clean Water Act (CWA) 311: n-butyl acetate

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs):
Listed

Clean Air Act Section 602 Class I Substances:
Not listed

Clean Air Act Section 602 Class II Substances:
Not listed

DEA List I Chemicals (Precursor Chemicals):
Not listed

DEA List II Chemicals (Essential Chemicals):
Not listed

SARA 302/304:
- Composition/information on ingredients
  No products were found.

SARA 304 RQ:
- Not applicable.

SARA 311/312:
- Classification
  Immediate (acute) health hazard
  Delayed (chronic) health hazard

Composition/information on ingredients:

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>≥50 - ≤75</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
<td>Yes</td>
</tr>
<tr>
<td>2-butoxyethyl acetate</td>
<td>≥10 - ≤25</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No</td>
</tr>
<tr>
<td>n-butyl acetate</td>
<td>≥10 - ≤25</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No</td>
</tr>
</tbody>
</table>

SARA 313:
- Product name | CAS number | %       |
- Form R - Reporting requirements
  Nickel 7440-02-0 112-07-2 ≥50 - ≤75
  2-butoxyethyl acetate 112-07-2 112-07-2 ≥10 - ≤25
- Supplier notification
  Nickel 7440-02-0 112-07-2 ≥50 - ≤75
  2-butoxyethyl acetate 112-07-2 112-07-2 ≥10 - ≤25

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations:

Massachusetts: The following components are listed: NICKEL; NICKEL CATALYST; BUTYL ACETATE; N-BUTYL ACETATE

New York: The following components are listed: Nickel; Butyl acetate

New Jersey: The following components are listed: NICKEL; 2-BUTOXYETHYL ACETATE; ETHANOL, 2-BUTOXY-, ACETATE; n-BUTYL ACETATE; ACETIC ACID, BUTYL ESTER

Pennsylvania: The following components are listed: NICKEL; GLYCOL ETHERS; ACETIC ACID, BUTYL ESTER

California Prop. 65
Section 15. Regulatory information

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

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Cancer</th>
<th>Reproductive</th>
<th>No significant risk level</th>
<th>Maximum acceptable dosage level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals
Not listed.

Montreal Protocol (Annexes A, B, C, E)
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

International lists

National inventory

Australia: All components are listed or exempted.
Canada: All components are listed or exempted.
China: All components are listed or exempted.
Europe: Not determined.
Japan:
  Japan inventory (ENCS): Not determined.
  Japan inventory (ISHL): Not determined.
Malaysia: Not determined.
New Zealand: All components are listed or exempted.
Philippines: All components are listed or exempted.
Republic of Korea: All components are listed or exempted.
Taiwan: All components are listed or exempted.
Turkey: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2</td>
</tr>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>1</td>
</tr>
</tbody>
</table>

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)
Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACUTE TOXICITY (inhalation) - Category 3</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SKIN IRRITATION - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2A</td>
<td>Calculation method</td>
</tr>
<tr>
<td>CARCINOGENICITY - Category 2</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

### History

| Date of printing          : 1/15/2019 |
| Date of issue/Date of revision : 1/15/2019 |
| Date of previous issue    : 1/15/2019 |
| Version                   : 3              |

### Key to abbreviations

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- UN = United Nations

### References

Not available.

> Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.