AMS 4779 (BNI-4)
Safety Data Sheet
according to the Hazardous Products Regulation (February 11, 2015)
Date of issue: 29 November 2017 Version: 2.0

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Trade name : AMS 4779 (BNI-4)
Product code : A00000479
Product group : Trade product

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Lucas-Milhaupt Toronto
290 Carlingview Drive
M9W 5G1 Rexdale - Canada
T +1 (416) 675-1860
LM_SDSinfo@lucasmilhaupt.com - www.lucasmilhaupt.com

1.4. Emergency telephone number

Emergency number : CHEMTREC Within the USA and Canada: 1-800-424-9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)
Skin sensitisation, Category 1 : H317
Carcinogenicity, Category 2 : H351
Specific target organ toxicity — Repeated exposure, Category 1 : H372
Hazardous to the aquatic environment — Acute Hazard, Category 1 : H400
Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS CA labelling
Hazard pictograms (GHS CA)

Signal word (GHS CA) : Danger
Hazard statements (GHS CA)
H317 - May cause an allergic skin reaction.
H351 - Suspected of causing cancer.
H372 - Causes damage to organs through prolonged or repeated exposure.
H400 - Very toxic to aquatic life.
Precautionary statements (GHS CA)
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face 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.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P315 - Specific treatment (see supplemental first aid instruction on this label)
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

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2.4. Unknown acute toxicity (GHS CA)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Chemical name / Synonyms</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS CA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel</td>
<td>Nickel metal / Nickel, elemental / Nickel, metallic / Nickel, metal / C.I. 77775</td>
<td>(CAS-No.) 7440-02-0</td>
<td>93.8 - 95.5</td>
<td>Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 1, H400</td>
</tr>
<tr>
<td>Silicon</td>
<td>Silicon powder</td>
<td>(CAS-No.) 7440-21-3</td>
<td>3 - 4</td>
<td>Not classified</td>
</tr>
<tr>
<td>Boron</td>
<td></td>
<td>(CAS-No.) 7440-42-8</td>
<td>1.5 - 2.2</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.
First-aid measures general : IF exposed or concerned: Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : May cause an allergic skin reaction.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Dry powder. Water spray. Foam.

5.2. Unsuitable extinguishing media

Unsuitable extinguishing media : Water.

5.3. Specific hazards arising from the hazardous product

No additional information available

5.4. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.2. Methods and materials for containment and cleaning up

For containment : Collect spillage.
Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
Other information : Dispose of materials or solid residues at an authorized site.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Floors, walls and other surfaces in the hazard area must be cleaned regularly.
Hygiene measures: Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Separate working clothes from town clothes. Launder separately.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store locked up. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

### Nickel (7440-02-0)

<table>
<thead>
<tr>
<th>Source</th>
<th>Control Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA - ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable particulate matter)</td>
</tr>
<tr>
<td>USA - OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td></td>
<td>1 mg/m³</td>
</tr>
<tr>
<td>Canada (Quebec)</td>
<td>VEMP (mg/m³)</td>
<td></td>
<td>1 mg/m³</td>
</tr>
<tr>
<td>Alberta</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable particulate matter)</td>
</tr>
<tr>
<td>British Columbia</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>0.05 mg/m³</td>
</tr>
<tr>
<td>Manitoba</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable particulate matter)</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1 mg/m³</td>
</tr>
<tr>
<td>Newfoundland &amp; Labrador</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable particulate matter)</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable particulate matter)</td>
</tr>
<tr>
<td>Nunavut</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>3 mg/m³ (inhalable fraction)</td>
</tr>
<tr>
<td>Northwest Territories</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>3 mg/m³ (inhalable fraction)</td>
</tr>
<tr>
<td>Northwest Territories</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable fraction)</td>
</tr>
<tr>
<td>Ontario</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1 mg/m³ (inhalable)</td>
</tr>
<tr>
<td>Prince Edward Island</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable particulate matter)</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>3 mg/m³ (inhalable fraction)</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1.5 mg/m³ (inhalable fraction)</td>
</tr>
<tr>
<td>Yukon</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>Yukon</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>1 mg/m³</td>
</tr>
</tbody>
</table>

### Silicon (7440-21-3)

<table>
<thead>
<tr>
<th>Source</th>
<th>Control Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA - OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td></td>
<td>15 mg/m³ (total dust)</td>
</tr>
<tr>
<td>Canada (Quebec)</td>
<td>VEMP (mg/m³)</td>
<td></td>
<td>5 mg/m³ (respirable fraction)</td>
</tr>
<tr>
<td>British Columbia</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>10 mg/m³ (containing no Asbestos and &lt;1% Crystalline silica-total dust)</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>10 mg/m³ (total dust)</td>
</tr>
<tr>
<td>Nunavut</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>20 mg/m³</td>
</tr>
<tr>
<td>Nunavut</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>Northwest Territories</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>20 mg/m³</td>
</tr>
<tr>
<td>Northwest Territories</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>20 mg/m³</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>Yukon</td>
<td>OEL STEL (mg/m³)</td>
<td></td>
<td>20 mg/m³</td>
</tr>
<tr>
<td>Yukon</td>
<td>OEL TWA (mg/m³)</td>
<td></td>
<td>30 mppcf</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves

Eye protection:

Safety glasses
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according to the Hazardous Products Regulation (February 11, 2015)  

**Skin and body protection:**  
Wear suitable protective clothing  

**Respiratory protection:**  
[In case of inadequate ventilation] wear respiratory protection.  

### SECTION 9: Physical and chemical properties  

#### 9.1. Information on basic physical and chemical properties  

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>No data available</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (ether=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure at 50 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

#### 9.2. Other information  

No additional information available

### SECTION 10: Stability and reactivity  

#### 10.1. Reactivity  

**Reactivity**: The product is non-reactive under normal conditions of use, storage and transport.

**Chemical stability**: Stable under normal conditions.

**Possibility of hazardous reactions**: No dangerous reactions known under normal conditions of use.

**Conditions to avoid**: None under recommended storage and handling conditions (see section 7).

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

### SECTION 11: Toxicological information  

#### 11.1. Information on toxicological effects  

| Acute toxicity (oral)                  | Not classified             |
| Acute toxicity (dermal)                | Not classified             |
| Acute toxicity (inhalation)            | Not classified             |

**Boron (7440-42-8)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>650 mg/kg</td>
</tr>
<tr>
<td>ATE CA (oral)</td>
<td>650 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 9000 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>&gt; 10.2 mg/l (Exposure time: 1 h)</td>
</tr>
</tbody>
</table>

**Silicon (7440-21-3)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>3160 mg/kg</td>
</tr>
<tr>
<td>ATE CA (oral)</td>
<td>3160 mg/kg bodyweight</td>
</tr>
</tbody>
</table>
AMS 4779 (BNI-4)  
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<table>
<thead>
<tr>
<th>Property</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Suspected of causing cancer.</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>Causes damage to organs through prolonged or repeated exposure.</td>
</tr>
</tbody>
</table>

**Nickel (7440-02-0)**  
**STOT-repeated exposure**  
Causes damage to organs through prolonged or repeated exposure.  

Aspiration hazard: Not classified  
Symptoms/effects after skin contact: May cause an allergic skin reaction.  

**SECTION 12: Ecological information**  

12.1. **Toxicity**  
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment. Very toxic to aquatic life.  
Acute aquatic toxicity: Very toxic to aquatic life.  
Chronic aquatic toxicity: Not classified  

**Nickel (7440-02-0)**  
**LC50 fish 1** > 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)  
**LC50 fish 2** 1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])  
**EC50 Daphnia 1** > 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)  
**EC50 Daphnia 2** 1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])  
**EC50 72h algae (1)** 0.18 mg/l (Species: Pseudokirchneriella subcapitata)  
**EC50 96h algae (1)** 0.174 - 0.311 mg/l (Species: Pseudokirchneriella subcapitata [static])  

12.2. Persistence and degradability  
No additional information available  

12.3. Bioaccumulative potential  
No additional information available  

12.4. Mobility in soil  
No additional information available  

12.5. Other adverse effects  
Ozone: Not classified  

**SECTION 13: Disposal considerations**  

13.1. Disposal methods  
Waste treatment methods: Dispose of contents/container in accordance with licensed collector’s sorting instructions.  

**SECTION 14: Transport information**  

14.1. Basic shipping description  
In accordance with TDG  
Transportation of Dangerous Goods  
Not regulated for transport  

14.2. Transport information/DOT  
Department of Transport  
Not regulated for transport
14.3. Air and sea transport

IMDG
Not regulated for transport

IATA
Not regulated for transport

SECTION 15: Regulatory information

15.1. National regulations

Boron (7440-42-8)
Listed on the Canadian DSL (Domestic Substances List)

Nickel (7440-02-0)
Listed on the Canadian DSL (Domestic Substances List)

Silicon (7440-21-3)
Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Boron (7440-42-8)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)

Nickel (7440-02-0)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

Silicon (7440-21-3)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

SECTION 16: Other information

Date of issue: 29 November 2017

Full text of H-statements:

<table>
<thead>
<tr>
<th>H</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>H351</td>
<td>Suspected of causing cancer.</td>
</tr>
<tr>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
</tbody>
</table>

SDS Canada (GHS)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.