Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>See Section 15.</td>
</tr>
</tbody>
</table>

**Common Name/Trade Name**

Cadmium

**Manufacturer**

SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Commercial Name(s)**

Not available.

**Synonym**

Not available.

**Chemical Name**

Cadmium

**Chemical Family**

Metal. (Inert material.)

**Chemical Formula**

Cd

**CAS#**

7440-43-9

**RTECS**

EU9800000

**TSCA**

TSCA 8(b) inventory: Cadmium

**Supplier**

SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**IN CASE OF EMERGENCY**

CHEMTREC (24hr) 800-424-9300

CALL (310) 516-8000

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Section 2. Composition and Information on Ingredients

**Exposure Limits**

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Cadmium</td>
<td>7440-43-9</td>
<td>0.01</td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Toxicological Data on Ingredients**

Cadmium:

- **ORAL (LD50):** Acute: 2330 mg/kg [Rat]. 890 mg/kg [Mouse].
- **VAPOR (LC50):** Acute: 8 mg/l 4 hours [Rabbit].

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Section 3. Hazards Identification

**Potential Acute Health Effects**

Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Non-hazardous in case of inhalation. Severe over-exposure can result in death.

**Potential Chronic Health Effects**

- **CARCINOGENIC EFFECTS:** Classified 1 (Proven for human.) by IARC, 1 (Clear evidence.) by NTP, + (Proven.) by OSHA. Classified A2 (Suspected for human.) by ACGIH.
- **MUTAGENIC EFFECTS:** Not available.
- **TERATOGENIC EFFECTS:** Not available.
- **DEVELOPMENTAL TOXICITY:** Not available.

The substance may be toxic to blood, kidneys, lungs, upper respiratory tract, prostate. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

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Continued on Next Page
### Section 4. First Aid Measures

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Contact</strong></td>
<td>Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.</td>
</tr>
<tr>
<td><strong>Skin Contact</strong></td>
<td>Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.</td>
</tr>
<tr>
<td><strong>Serious Skin Contact</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.</td>
</tr>
<tr>
<td><strong>Serious Inhalation</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.</td>
</tr>
<tr>
<td><strong>Serious Ingestion</strong></td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### Section 5. Fire and Explosion Data

<table>
<thead>
<tr>
<th>Category</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flammability of the Product</strong></td>
<td>Non-flammable.</td>
</tr>
<tr>
<td><strong>Auto-Ignition Temperature</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Flash Points</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Flammable Limits</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Products of Combustion</strong></td>
<td>Some metallic oxides.</td>
</tr>
<tr>
<td><strong>Fire Hazards in Presence of Various Substances</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Fire Fighting Media and Instructions</strong></td>
<td>SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.</td>
</tr>
<tr>
<td><strong>Special Remarks on Fire Hazards</strong></td>
<td>Cadmium dust or powder ignites spontaneously in air and is flammable and explosive when exposed to heat or flame, or by chemical reaction with oxidizing agents, metals, hydrozoic acid, selenium, tellurium, zinc. It causes a violent or explosive reaction when heated with ammonium nitrate. Cadmium dust or powder ignites spontaneously in air and is flammable and explosive when exposed to heat or flame, or by chemical reaction with oxidizing agents, metals, hydrozoic acid, selenium, tellurium, zinc.</td>
</tr>
<tr>
<td><strong>Special Remarks on Explosion Hazards</strong></td>
<td>Cadmium explodes on contact with hydrozoic acid.</td>
</tr>
</tbody>
</table>

### Section 6. Accidental Release Measures

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small Spill</strong></td>
<td>Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.</td>
</tr>
<tr>
<td><strong>Large Spill</strong></td>
<td>Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike it needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.</td>
</tr>
</tbody>
</table>

Continued on Next Page
Section 7. Handling and Storage

**Precautions**
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as acids.

**Storage**
Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

**Engineering Controls**
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection**
Safety glasses. Lab coat. Gloves (impervious).

**Personal Protection in Case of a Large Spill**
Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits**
TWA: 0.01 (mg/m³) from ACGIH (TLV) [United States] Inhalation
TWA: 0.002 (mg/m³) from ACGIH (TLV) [United States] Inhalation Respirable.
TWA: 0.01 (mg/m³) [Canada] Inhalation Total.
TWA: 0.002 (mg/m³) [Canada] Inhalation Respirable.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical state and appearance</th>
<th>Odor</th>
<th>Odorless.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>112.4 g/mole</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH (1% soln/water)</td>
<td>Not applicable.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>765°C (1409°F)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting Point</td>
<td>320.9°C (609.6°F)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>8.64 (Water = 1)</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Volatility</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Water/Oil Dist. Coeff.</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Ionicity (in Water)</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Dispersion Properties</td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in cold water, hot water. Soluble in acids and ammonium nitrate solution.</td>
<td></td>
</tr>
</tbody>
</table>

Section 10. Stability and Reactivity Data

**Stability**
The product is stable.

**Instability Temperature**
Not available.

**Conditions of Instability**
Incompatible materials, moisture/moist air.

**Incompatibility with various substances**
Reactive with acids.

**Corrosivity**
Not considered to be corrosive for metals and glass.
Cadmium

**Special Remarks on Reactivity**
- Slowly oxidized by moist air to form Cadmium Oxide.
- Cadmium reacts with dilute nitric acid, and has a slow reaction with hot hydrogen chloride (hydrochloric acid).
- Cadmium has a rapid reaction with nitril fluoride when heated.
- Cadmium in powder or granular form may explode when mixed with air.
- Cadmium dust or powder ignites spontaneously in air and is flammable and explosive when exposed to heat or flame, or by chemical reaction with oxidizing agents, metals, hydrozoic acid, selenium, tellurium, zinc.
- Also incompatible with elemental sulfur, dilute nitric acid, hot hydrochloric acid.

**Special Remarks on Corrosivity**
- Not available.

**Polymerization**
- Will not occur.

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**Section 11. Toxicological Information**

**Routes of Entry**
- Absorbed through skin. Eye contact.

**Toxicity to Animals**

**WARNING:** THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.
- Acute oral toxicity (LD50): 890 mg/kg [Mouse].
- Acute toxicity of the vapor (LC50): 8 mg/l 4 hours [Rabbit].
- Acute toxicity of the dust (LC50): 25 mg/m³ 0.5 hours [Rat].

**Chronic Effects on Humans**

**CARCINOGENIC EFFECTS:**
- Classified 1 (Proven for human.) by IARC, 1 (Clear evidence.) by NTP, + (Proven.) by OSHA. Classified A2 (Suspected for human.) by ACGIH.
- May cause damage to the following organs: blood, kidneys, lungs, upper respiratory tract, prostate.

**Other Toxic Effects on Humans**
- Slightly hazardous in case of skin contact (irritant), of ingestion.
- Non-hazardous in case of inhalation.

**Special Remarks on Toxicity to Animals**
- Not available.

**Special Remarks on Chronic Effects on Humans**
- May cause adverse reproductive effects and birth defects (teratogenic).
- May cause cancer.

**Special Remarks on other Toxic Effects on Humans**

**Acute Potential Health Effects:**
- Skin: May cause skin irritation and dermatitis.
- Eyes: Not expected to cause eye irritation since it is in stick or mossy form.
- Inhalation: Not expected to cause respiratory tract irritation for normal use since it is in stick or mossy form and will not create dust or fume under normal handling conditions. If it is smelted it will release fumes. Inhalation of Cadmium fumes or dust causes respiratory tract irritation and the Cadmium is readily absorbed after inhalation. The absorbed Cadmium accumulates throughout the body, especially in the liver and kidneys. Inhalation of fumes or dust can cause "fume metal fever", a condition characterized by flu-like symptoms. Symptoms may include shivering, sweating, headache, weakness, body pains, chest pain, difficulty breathing, sore throat, coughing, tracheobronchitis, pulmonary edema, pneumonia. Other symptoms may include dizziness, irritability, nausea, vomiting, diarrhea.
- Ingestion: Cadmium in the stick or mossy form is not likely to pose any ingestion hazard. However, symptoms of acute ingestion may include abdominal pain, burning sensation, nausea, vomiting, salivation, muscle cramps, vertigo, shock, unconsciousness, convulsions.
- Chronic Potential Health Effects:
- Ingestion or Inhalation: Cadmium in the stick or mossy form is not likely to pose an ingestion or inhalation hazard for normal handling since it is unlikely to be ingested in these forms. However chronic inhalation of dust or fumes or chronic ingestion of Cadmium dust can pose a health hazard. Cadmium is eliminated from the body very slowly and accumulates in the body with increasing age and duration of exposure. Signs and symptoms of chronic exposure include gastrointestinal effects, generalized pain, kidney damage, loss of sense of smell, nasal discharge, nose and throat irritation, rhinitis, nasal septum ulceration, olfactory nerve damage, lack of appetite, weight loss, nausea, tooth discoloration (yellow teeth), bone structure defects and microfractures, osteomalacia, liver damage, anemia, eosinophilia, pulmonary emphysema, chronic bronchitis, bronchopneumonia.

**May cause adverse reproductive effects and birth defects (teratogenic).**

**May cause cancer.**

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**Section 12. Ecological Information**

**Ecotoxicity**
- Ecotoxicity in water (LC50): 0.0004-0.003 mg/l 96 hours [Fish (pimephales promelas)], 0.002-0.24 mg/l 96 hours [Fish (cypinus carpio)], 0.003-0.006 mg/l 96 hours [Fish (oncorhynchus mykiss)], 0.016 mg/l 96 hours [Fish (oryzias latipes)], 21.1 mg/l 96 hours [Fish (lepusis macrochirus)], 0.0244 mg/l 48 hours [Daphnia (daphnia)].

**BOD5 and COD**
- Not available.

**Products of Biodegradation**
- Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

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*Continued on Next Page*
### Section 13. Disposal Considerations

**Waste Disposal**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14. Transport Information

**DOT Classification**

Not a DOT controlled material (United States).

**Identification**

Not applicable.

**Special Provisions for Transport**

Not applicable.

**DOT (Pictograms)**

![Not Applicable Pictogram]

### Section 15. Other Regulatory Information and Pictograms

**Federal and State Regulations**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute:
- Cadmium

California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Cadmium

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Cadmium

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Cadmium

New York release reporting list: Cadmium

Pennsylvania RTK: Cadmium

Minnesota: Cadmium

Michigan critical material: Cadmium

Massachusetts RTK: Cadmium

Massachusetts spill list: Cadmium

New Jersey: Cadmium

New Jersey spill list: Cadmium

Louisiana spill reporting: Cadmium

California Director's List of Hazardous Substances: Cadmium

TSCA 8(b) inventory: Cadmium

SARA 313 toxic chemical notification and release reporting: Cadmium

CERCLA: Hazardous substances.: Cadmium: 10 lbs. (4.536 kg)

**California Proposition 65 Warnings**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Cadmium

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Cadmium

**Other Regulations**


EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 231-152-8).

Canada: Listed on Canadian Domestic Substance List (DSL).

China: Listed on National Inventory.

Japan: Not listed on National Inventory (ENCS).

Korea: Listed on National Inventory (KECI).

Philippines: Listed on National Inventory (PICCS).

Australia: Listed on AICS.

**Other Classifications**

WHIMIS (Canada)

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).

CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

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*Continued on Next Page*
### DSCL (EEC)
- R26: Very toxic by inhalation.
- R45: May cause cancer.
- R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R62: Possible risk of impaired fertility.
- R63: Possible risk of harm to the unborn child.
- R48/23/25: Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
- R68: Possible risks of irreversible effects.

### Health Hazard

<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Fire Hazard</th>
<th>Reactivity</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>B</td>
</tr>
</tbody>
</table>

### Specific hazard
- S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S53: Avoid exposure - obtain special instructions before use.
- S60: This material and its container must be disposed of as hazardous waste.
- S61: Avoid release to the environment. Refer to special instructions/Safety data sheets.

### Protective Equipment
- Gloves (impervious).
- Lab coat.
- Wear appropriate respirator when ventilation is inadequate.
- Safety glasses.

### HMIS (U.S.A.) (Pictograms)

### National Fire Protection Association (U.S.A.) (Pictograms)

### WHMIS (Canada) (Pictograms)

### TDG (Canada) (Pictograms)

### ADR (Europe) (Pictograms)
### Section 16. Other Information

<table>
<thead>
<tr>
<th>MSDS Code</th>
<th>C3020</th>
</tr>
</thead>
<tbody>
<tr>
<td>References</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

| Other Special Considerations | Uses: Electroplating of automotive, aircraft, and electronic parts; marine equipment and industrial machinery; in preparation of cadmium sulfides, cadmium selenides and mixtures containing these salts for use as pigments; in fire protection systems, machinery enamels, baking enamels, batteries; chemical intermediate for pigments, plastic stabilizers; catalysts; soft solder and solder for aluminum; reactor control rods; constituent of low melting or easily fusible alloys. |

**Validated by Sonia Owen on 5/14/2012.**

**Verified by Sonia Owen.**

**Printed 7/2/2012.**

**CALL (310) 516-8000**

### Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.