Material Safety Data Sheet

**Section 1. Chemical Product and Company Identification**

<table>
<thead>
<tr>
<th>Common Name/Trade Name</th>
<th>Hopkins-Cole Reagent, Benedicts's Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248</td>
</tr>
<tr>
<td>Commercial Name(s)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Synonym</td>
<td>Not available.</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Chemical Family</td>
<td>(Acid.)</td>
</tr>
<tr>
<td>Chemical Formula</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Supplier</td>
<td>SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248</td>
</tr>
</tbody>
</table>

**Section 2. Composition and Information on Ingredients**

<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) Oxalic acid dihydrate</td>
<td>6153-56-6</td>
<td>1</td>
<td>2</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>2) Magnesium Metal, Powder</td>
<td>7439-95-4</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3) Water</td>
<td>7732-18-5</td>
<td></td>
<td></td>
<td></td>
<td>95-96</td>
</tr>
</tbody>
</table>

**Toxicological Data on Ingredients**

- Oxalic acid dihydrate
  - LD₅₀: Not available.
  - LC₅₀: Not available.
- Magnesium Metal, Powder
  - LD₅₀: Not available.
  - LC₅₀: Not available.
Section 3. Hazards Identification

Potential Acute Health Effects
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to kidneys, the nervous system, mucous membranes, heart, brain, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4. First Aid Measures

Eye Contact
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation
Not available.

Ingestion
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion
Not available.

Section 5. Fire and Explosion Data

Flammability of the Product
Non-flammable.

Auto-Ignition Temperature
Not applicable.

Flash Points
Not applicable.

Flammable Limits
Not applicable.

Products of Combustion
Not available.

Fire Hazards in Presence of Various Substances
Not applicable.

Explosion Hazards in Presence of Various Substances
Risks of explosion of the product in presence of static discharge: Not available. Non-explosive in presence of shocks, of acids.

Fire Fighting Media and Instructions
Not applicable.

Special Remarks on Fire Hazards
Not available.

Special Remarks on Explosion Hazards
Fine dust dispersed in air in sufficient concentrations, and in the presences of an ignition source is a potential dust explosion hazard. (Oxalic acid dihydrate)

Continued on Next Page
Section 6. Accidental Release Measures

Small Spill
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Neutralize the residue with a dilute solution of sodium carbonate. 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.

Section 7. Handling and Storage

Precautions
Keep container dry. Do not breathe gas/fumes/vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.

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

Section 8. Exposure Controls/Personal Protection

Engineering Controls
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits
**Oxalic acid dihydrate**
- TWA: 1 STEL: 2 (mg/m$^3$) from ACGIH (TLV) [United States]
- TWA: 1 STEL: 2 (mg/m$^3$) from OSHA (PEL) [United States]
- TWA: 1 STEL: 2 (mg/m$^3$) from NIOSH [United States]
- TWA: 1 STEL: 2 (mg/m$^3$) [United Kingdom (UK)]
- TWA: 1 STEL: 2 (mg/m$^3$) [Canada]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical state and appearance</th>
<th>Liquid.</th>
<th>Odor</th>
<th>Odorless.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>Not applicable.</td>
<td>Taste</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH (1% soh/water)</td>
<td>Acidic.</td>
<td>Color</td>
<td>Clear Colorless.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>The lowest known value is 100°C (212°F) (Water).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Weighted average: 1.02 (Water = 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>The highest known value is 2.3 kPa (@ 20°C) (Water).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>The highest known value is 0.62 (Air = 1) (Water).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volatility</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water/Oil Dist. Coeff.</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ionicity (in Water)</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Continued on Next Page
**Dispersion Properties**
See solubility in water, diethyl ether.

**Solubility**
Easily soluble in cold water, hot water.
Partially soluble in diethyl ether.

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### Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stability</strong></td>
<td>The product is stable.</td>
</tr>
<tr>
<td><strong>Instability Temperature</strong></td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Conditions of Instability</strong></td>
<td>Incompatible materials</td>
</tr>
<tr>
<td><strong>Incompatibility with various substances</strong></td>
<td>Slightly reactive to reactive with oxidizing agents, metals, alkalis. Non-reactive with acids.</td>
</tr>
<tr>
<td><strong>Corrosivity</strong></td>
<td>Non-corrosive in presence of glass.</td>
</tr>
</tbody>
</table>

**Special Remarks on Reactivity**
Incompatible with chlorites, hypochlorites, silver and silver compounds, furfuryl alcohol. Hygroscopic; keep container tightly closed. (Oxalic acid dihydrate)

**Special Remarks on Corrosivity**
Not available.

**Polymerization**
Will not occur.

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### Section 11. Toxicological Information

<table>
<thead>
<tr>
<th>Routes of Entry</th>
<th>Absorbed through skin. Eye contact. Inhalation. Ingestion.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toxicity to Animals</strong></td>
<td>LD50: Not available. LC50: Not available.</td>
</tr>
<tr>
<td><strong>Chronic Effects on Humans</strong></td>
<td>Contains material which may cause damage to the following organs: kidneys, the nervous system, mucous membranes, heart, brain, skin, eyes.</td>
</tr>
<tr>
<td><strong>Other Toxic Effects on Humans</strong></td>
<td>Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).</td>
</tr>
</tbody>
</table>

**Special Remarks on Toxicity to Animals**
LD50 data for Oxalic acid, ahydrous (CAS no. 144-62-7):
LD50[rat] - Route: oral; Dose: 7500 mg/kg (Oxalic acid dihydrate)

**Special Remarks on Chronic Effects on Humans**
May cause adverse reproductive effects based on animal test data. No human data found. (Oxalic acid dihydrate)

**Special Remarks on other Toxic Effects on Humans**
Acute Potential Health Effects:
- **Skin**: Causes skin irritation.
- **Eyes**: Causes eye irritation. May cause conjunctivitis.
- **Inhalation**: Causes irritation of the respiratory tract. Inhalation of oxalic acid may also cause digestive disturbances such as nausea and vomiting as well as affecting the nerves and urinary system and causing headache, muscular irritability, weakness, and albuminuria.
- **Ingestion**: Causes severe digestive tract irritation. It may affect the cardiovascular system, nervous system, and urinary system. Symptoms may include vomiting, diarrhea, hypermotility, abdominal pain, burning pain in the throat, esophagus, stomach, purging, weak pulse, hypotension, cardiac irregularities, cardiovascular collapse. Other symptoms may include convulsions, headache, twitching, tetany, stupor, coma, tingling of fingers and toes, muscular irritability. Renal damage, as evidenced by oliguria, albuminuria, hematuria, may occur because Oxalic acid can bind calcium to form calcium oxalate which is insoluble at physiological pH. The calcium oxalate formed might precipitate in the kidney tubules. Hypocalcemia may also occur, which is what may affect the function of the heart and nerves and cause the above cardiovascular and nervous system effects. Chronic Potential Health Effects:
- **Skin**: Prolonged or repeated exposure may cause localized pain and cyanosis of the fingers, and even gangrenous changes. This has occurred on the hands of people working with oxalic acid solutions without rubber gloves.
- **Ingestion and Inhalation**: Repeated or prolonged ingestion and inhalation may affect metabolism/appetite resulting in weight loss. Inhalation of mist over a long period of time may result in respiratory tract inflammation. Ingestion of oxalic acid over a long period of time may cause depressed thyroid function.

Continued on Next Page
Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

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

Toxicity of the Products of Biodegradation The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation Not available.

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)

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations Connecticut hazardous material survey.: Magnesium Metal, Powder
Rhode Island RTK hazardous substances: Magnesium Metal, Powder
Pennsylvania RTK: Oxalic acid dihydrate; Magnesium Metal, Powder
Massachusetts RTK: Magnesium Metal, Powder
Massachusetts spill list: Magnesium Metal, Powder
New Jersey: Magnesium Metal, Powder
TSCA 8(b) inventory: Magnesium Metal, Powder; Water

California Proposition 65 Warnings 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: No products were found.


Other Classifications WHMIS (Canada) CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC) This product is not classified according to the EU regulations.

HMIS (U.S.A.)

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

National Fire Protection Association (U.S.A.) Health 2 0 Flammability 0 Reactivity Specific hazard

Continued on Next Page
## Protective Equipment

- **Gloves.**
- **Lab coat.**
- **Vapor respirator.** Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
- **Splash goggles.**

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### Section 16. Other Information

<table>
<thead>
<tr>
<th>MSDS Code</th>
<th>H165S</th>
</tr>
</thead>
<tbody>
<tr>
<td>References</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other Special Considerations</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Verified by Sonia Owen.  
Printed 9/12/2006.

CALL (310) 516-8000

Notice to Reader

**Continued on Next Page**
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.