## Material Safety Data Sheet

### Section 1. Chemical Product and Company Identification

**Common Name/Trade Name**: Mercuro us Nitrate, Dihy drate  
**Catalog Number(s)**: M1206, M1208  
**CAS#**: 14836-60-3; 10415-75-5 (anhydrous CAS number)  
**RTECS**: OM8000000  
**TSCA**: TSCA 8(b) inventory: No products were found. The product with CAS number 14830-60-3 is exempt from TSCA 8(b) listing since it is a hydrate. However, the anhydrous form (CAS number 10415-75-5 is listed on the TSCA 8(b) inventory  
**CI#**: Not available.  
**Manufacturer**: SPECTRUM LABORATORY PRODUCTS INC.  
14422 S. SAN PEDRO STREET  
GARDENA, CA 90248  
**Commercial Name(s)**: Not available.  
**Synonym**: Mercury (I) Nitrate  
**Chemical Name**: Nitric acid, mercury(1+)salt, dihydrate  
**Chemical Family**: Not available.  
**Chemical Formula**: Hg2(NO3)2.2H2O  
**Supplier**: SPECTRUM LABORATORY PRODUCTS INC.  
14422 S. SAN PEDRO STREET  
GARDENA, CA 90248

### 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>
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</thead>
<tbody>
<tr>
<td>1) Mercurous Nitrate, Dihydrate</td>
<td>14836-60-3</td>
<td>0.05</td>
<td>0.15</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Toxicological Data on Ingredients**  
**Mercurous Nitrate, anhydrous (CAS number 10415-75-5):**  
**ORAL (LD50):** Acute: 170 mg/kg [Rat]. 49.3 mg/kg [Mouse].  
**DERMAL (LD50):** Acute: 2330 mg/kg [Rat].  

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**NFPA**

| 0 | 0 | 3 |

**HMS**

| 3 | 0 | 0 |

**Personal Protective Equipment**

See Section 15.
### Section 3. Hazards Identification

| Potential Acute Health Effects | Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (permeator). Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. |
| 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, gastrointestinal tract, skin, central nervous system (CNS). 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. |

### 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. Get medical attention immediately. |
| Skin Contact | In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately. |
| Serious Skin Contact | Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate 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 | Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention. |
| Ingestion | If swallowed, 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 immediately. |
| 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 | of combustible materials of organic materials |
| Fire Fighting Media and Instructions | Not applicable. |
| Special Remarks on Fire Hazards | Contact with combustible or organic materials may cause fire. When heated to decomposition it emits toxic fumes of nitrogen oxides, mercury/mercury oxides. |
| Special Remarks on Explosion Hazards | Contact with red hot carbon causes mild explosion. Mixture of Mercurous nitrate and Phosphorus explodes violently when struck with hammer. |

Continued on Next Page
Section 6. Accidental Release Measures

Small Spill
Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill
Oxidizing material. Poisonous solid. Stop leak if without risk. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. 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 away from heat. Keep away from sources of ignition. Keep away from combustible material. Do not ingest. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals.

Storage

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

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Dust 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
Exposure Limits for Inorganic Mercury Compounds (as Hg):
TWA: 0.025 (mg(Hg)/m³) from ACGIH (TLV) [United States] SKIN (skin designation). Skin absorption as potential significant contribution to overall exposure.
TWA: 0.1 (mg(Hg)/m³) from ACGIH (TLV) [United States] Inhalation
TWA: 0.1 (mg(Hg)/m³) from NIOSH [United States] SKIN (skin designation). Skin absorption as potential significant contribution to overall exposure.
TWA: 0.1 (mg(Hg)/m³) from OSHA (PEL) [United States] Inhalation
TWA: 0.05 STEL: 0.15 (mg(Hg)/m³) [United Kingdom (UK)]
Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance
Solid. (Crystals solid.)

Molecular Weight
561.22 g/mole

pH (1% soln/water)
Not available.

Odor
Not available.

Taste
Not available.

Color
Not available.

Boiling Point
Not available.

Melting Point
Decomposition temperature: 70°C (158°F)

Critical Temperature
Not available.

Specific Gravity
4.78 (Water = 1)

Vapor Pressure
Not applicable.

Vapor Density
Not available.

Volatility
Not available.

Odor Threshold
Not available.

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### Water/Oil Dist. Coeff.
Not available.

### Ionicity (in Water)
Not available.

### Dispersion Properties
Not available.

### Solubility
Soluble in 13 parts water containing 1% Nitric acid.
Insoluble in ammonium hydroxide.

### Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Incompatible materials</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with reducing agents, combustible materials, organic materials, metals, acids</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Non-corrosive in presence of glass</td>
</tr>
</tbody>
</table>

### Section 11. Toxicological Information

**Routes of Entry**
Absorbed through skin. Inhalation. Ingestion.

**Toxicity to Animals**
Acute oral toxicity (LD50): 49.3 mg/kg [Mouse].
Acute dermal toxicity (LD50): 2330 mg/kg [Rat].

**Chronic Effects on Humans**
May cause damage to the following organs: kidneys, the nervous system, gastrointestinal tract, skin, central nervous system (CNS).

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

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

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

**Special Remarks on other Toxic Effects on Humans**
Acute Potential Health Effects:
Skin: Causes irritation and possible burns. It can be absorbed through the skin with symptoms similar to ingestion. Harmful if absorbed through skin.
Eyes: Causes irritation with possible burns and eye damage.
Inhalation: Can cause respiratory tract (nose, throat, lung) irritation causing sore throat, coughing, tightness in chest, breathing difficulties, and/or shortness of breath. Pneumonitis may develop.
Ingestion: Toxic. Harmful if swallowed. May cause burning of the mouth and pharynx. Can cause salivation, metallic taste, abdominal pain, nausea, vomiting, hypermotility, bloody diarrhea. May affect the kidneys (proteinuria, acute renal failure).
Inhalation/Ingestion: High or repeated exposure can cause Mercury poisoning. Mercury poisoning causes sore gums, personality changes, tremor/trembling (often with shaky handwriting), dizziness, fatigue, irritability and increased saliva. Other changes may include serious personality changes, memory loss, extreme dryness, weakness, stomatitis, gingivitis, loss of teeth, gastrointestinal disturbances, metallic taste, poor appetite/anorexia, weight loss, "pins and needles" (peripheral neuropathy). Exposures can also affect the liver, cause kidney damage, and may cause decreased visual acuity, and affect peripheral vision (the ability to see to the side). Brain damage can occur, especially if exposure continues.

Chronic Potential Health Effects

Continued on Next Page
Mercurous Nitrate, Dihydrate

**Inhalation/Ingestion:** High or repeated exposure can cause Mercury poisoning. See above for symptoms of Mercury poisoning.

**Eye Contact:** brown staining in the eye without visual impairment.

**Skin:** Repeated skin contact can make the skin turn gray. Skin allergy/dermatitis can also occur. If this happens, even small future exposures can cause rash.

**Note:** In addition to the effects of exposure to mercury, this product is also a nitrate. The first clinical signs associated with nitrate poisoning include: Gastroenteritis, abdominal pain, nausea, vomiting (spontaneous vomiting), diarrhea, metabolic acidosis. Purging and diuresis can be expected. The toxicity of nitrates is due to the in vivo conversion to nitrites. The primary toxic effects of nitrites include orthostatic hypotension (due to peripheral vasodilation) and methemoglobinemia (the formation of methemoglobin in the blood which causes deficient oxygenation of the blood due to decreased available hemoglobin). Other symptoms may include muscular weakness, dizziness, lightheadedness, fatigue, throbbing headache, mental impairment, incoordination, seizures, convulsions, bradycardia or tachycardia (slow or fast heart beat), dysrhythmias, dyspnea. Furthermore, methemoglobinemia due to inadequate oxygenation of the blood can lead to progressive cyanosis, and coma. Cyanosis is first visible as a bluish discoloration of the mucous membranes and unpigmented areas of the body. Prolonged or repeated ingestion of large amounts of nitrates may affect the liver and can cause nausea, vomiting, anorexia/weight loss, methemoglobinemia (characterized by dizziness, rapid or slow heart beat, irregular breathing, convulsions), and possible coma and death.

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**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 products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation** Not available.

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**Section 13. Disposal Considerations**

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

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**Section 14. Transport Information**

**DOT Classification** CLASS 6.1: Poisonous material.

**Identification** : Mercurous nitrate UNNA: 1627 PG: II

**Special Provisions for Transport** Marine Pollutant

**DOT (Pictograms)** ![DOT Pictogram]

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**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: Mercurous Nitrate, Dihydrate (Listed as Mercury and Mercury compounds)

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: Mercurous Nitrate, Dihydrate (Listed as Mercury and Mercury compounds)

Connecticut hazardous material survey.: Mercurous Nitrate (CAS number 10415-75-5)

Illinois chemical safety act: Mercurous Nitrate (CAS number 10415-75-5)

New York release reporting list: Mercurous Nitrate (CAS number 10415-75-5)

Pennsylvania RTK: Mercurous Nitrate (CAS number 10415-75-5)

Massachusetts RTK: Mercurous Nitrate (CAS number 10415-75-5)

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Continued on Next Page
Mercurous Nitrate, Dihydrate


The classification of this product has not been validated yet by the Service du repertoire toxicologique. However, it might be classified as:

CLASS C: Oxidizing material.
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
CLASS D-2B: Material causing other toxic effects (TOXIC).

R8- Contact with combustible material may cause fire.
R20/21- Harmful by inhalation and in contact with skin.
R25- Toxic if swallowed.
R33- Danger of cumulative effects.
R36/38- Irritating to eyes and skin.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Other Classifications

WHMIS (Canada) The classification of this product has not been validated yet by the Service du repertoire toxicologique. However, it might be classified as:

CLASS C: Oxidizing material.
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC) R8- Contact with combustible material may cause fire.
R20/21- Harmful by inhalation and in contact with skin.
R25- Toxic if swallowed.
R33- Danger of cumulative effects.
R36/38- Irritating to eyes and skin.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
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.

HMSIS (U.S.A.)

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

Health Hazard 3
Fire Hazard 0
Reactivity 0

Health 3
Ox
Reactivity

Specific hazard

WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)

TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

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**Protective Equipment**

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

**Section 16. Other Information**

<table>
<thead>
<tr>
<th>MSDS Code</th>
<th>M3650</th>
</tr>
</thead>
<tbody>
<tr>
<td>References</td>
<td>Not available.</td>
</tr>
<tr>
<td>Other Special Considerations</td>
<td>Uses: Fire gilding; blackening brass; analytical reagent; intermediate for other mercury derivatives</td>
</tr>
</tbody>
</table>

Validated by Sonia Owen on 7/14/2008.
Verified by Sonia Owen.
Printed 7/15/2008.

**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.