Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Common Name/Trade Name</th>
<th>Norepinerphrine Bitartrate, Monohydrate</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>1,2-Benzenediol, 4-(2-amino-1-hydroxyethyl)-, (R)-, [R-(R',R*)]-2,3-dihydroxybutandioate (1:1) (salt), monohydrate Arterenol, tartrate, monohydrate; L-Noradrenaline bitartrate monohydrate; Levarterenol bitartrate monohydrate L-4-(2-Amino-1-hydroxyethyl)-1,2 benzenediol Bitartrate, monohydrate</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>1,2-Benzenediol, 4-[(1R)-2-amino-1-hydroxyethyl]-, (2R,3R)-2,3-dihydroxybutanedioate (1:1) (salt), monohydrate</td>
</tr>
<tr>
<td>Chemical Family</td>
<td>Not available.</td>
</tr>
<tr>
<td>Supplier</td>
<td>SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248</td>
</tr>
</tbody>
</table>

IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300

CALL (310) 516-8000

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) Norepinerphrine Bitartrate, Monohydrate</td>
<td>69815-49-2</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Toxicological Data on Ingredients

For Epinephrine Bitartrate (CAS no. 51-42-3):

ORAL (LD50): Acute: 4 mg/kg [Mouse].

Oral LD 50 information is not available for Norepinephrine Bitartrate. The health hazard was extrapolated from Epinephrine Bitartrate.

Continued on Next Page
Section 3. Hazards Identification

Potential Acute Health Effects: Very hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Severe over-exposure can result in death.

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 the nervous system, heart, cardiovascular system, Smooth muscle. 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. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

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: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...).

Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of heat.


Fire Fighting Media and Instructions: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Continued on Next Page
**Section 6. Accidental Release Measures**

<table>
<thead>
<tr>
<th>Spill Type</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Spill</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>Large Spill</td>
<td>Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.</td>
</tr>
</tbody>
</table>

**Section 7. Handling and Storage**

<table>
<thead>
<tr>
<th>Precautions</th>
<th>Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, alkalis.</th>
</tr>
</thead>
</table>

**Section 8. Exposure Controls/Personal Protection**

<table>
<thead>
<tr>
<th>Engineering Controls</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Protection</td>
<td>Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.</td>
</tr>
<tr>
<td>Personal Protection in Case of a Large Spill</td>
<td>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.</td>
</tr>
<tr>
<td>Exposure Limits</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Section 9. Physical and Chemical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state and appearance</td>
<td>Solid.</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>337.3 g/mole</td>
</tr>
<tr>
<td>pH (1% soln/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting Point</td>
<td>100°C (212°F)</td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Volatility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>Water/Oil Dist. Coeff.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Ionicity (in Water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Dispersion Properties</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

*Continued on Next Page*
### 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>Excess heat, incompatible materials, light, air.</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with oxidizing agents, acids, alkalis.</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Special Remarks on Reactivity**: Air and light sensitive.

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

**Polymerization**: Will not occur.

### Section 11. Toxicological Information

#### Routes of Entry
- Inhalation. Ingestion.

#### Toxicity to Animals
- LD50: Not available.
- LC50: Not available.

#### Chronic Effects on Humans
- May cause damage to the following organs: the nervous system, heart, cardiovascular system, Smooth muscle.

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

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

**Special Remarks on Chronic Effects on Humans**: Not available.

**Special Remarks on other Toxic Effects on Humans**: Acute Potential Health Effects:
- Skin: May cause skin irritation.
- Eyes: May cause eye irritation.
- Inhalation: Dust may cause respiratory tract irritation with coughing, wheezing, shortness of breath
- Ingestion: May be fatal if swallowed. May cause nausea, vomiting, sweating, photophobia. May affect behavior/central nervous system (headache, anxiety, dizziness, weakness, mental/mood changes, convulsions, excitement), respiration (respiratory difficulty, respiratory stimulation), cardiovascular system/heart (palpitations, hypertension, cardiac arrhythmias, fast or slow heartbeat).
- Medical Conditions Aggravated by Exposure: Mesenteric or peripheral thrombosis (blood clots); hypertension; dehydration; thyroid problems (especially hyperthyroidism); (taking monoamine oxidase inhibitors (MAO) or antidepressants of the triptiline or imipramine types; during Cyclopropane or halthane anesthesia.

### 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.

*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
CLASS 6.1: Poisonous material.

Identification
: Toxic solid, organic (norepinephrine bitartrate monohydrate) UNNA: 2811 PG: II

Special Provisions for Transport
Not available.

DOT (Pictograms)

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations
No products were found.

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: No products were found.

Other Regulations
EINECS: This product is not on the European Inventory of Existing Commercial Chemical Substances.
Canada: Not listed on Canadian Domestic Substance List (DSL) or Canadian Non-Domestic Substances List (NDSL)
China: Not listed on National Inventory.
Japan: Not listed on National Inventory (ENCS).
Korea: Not listed on National Inventory (KECI).
Philippines: Not listed on National Inventory (PICCS).
Australia: Not listed on AICS.

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

DSCL (EEC) R28- Very toxic if swallowed.
S28- After contact with skin, wash immediately with plenty of [***]
S36/37- Wear suitable protective clothing and gloves.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.)
Health Hazard [3]
Fire Hazard [1]
Reactivity [0]
Personal Protection [E]

National Fire Protection Association (U.S.A.)
Health [3]
Reactivity [0]
Specific hazard

WHMIS (Canada) (Pictograms)

Continued on Next Page
Protective Equipment

Gloves.

Lab coat.

Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Safety glasses.

Section 16. Other Information

MSDS Code  N0131

References  Not available.

Other Special Considerations  Use: Medication for short-term control of low blood pressure


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.