SAFETY DATA SHEET

Product Name: Verapamil Hydrochloride Injection

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

| Manufacturer Name And Address | Hospira, Inc.  
|-------------------------------| 275 North Field Drive  
|                               | Lake Forest, Illinois 60045  
|                               | USA  
| Emergency Telephone   | CHEMTREC: North America: 800-424-9300;  
|                      | International 1-703-527-3887; Australia - 61-290372994; UK - 44-870-8200418  
| Hospira, Inc., Non-Emergency | 224 212-2000  
| Product Name | Verapamil Hydrochloride Injection  
| Synonyms | benzeneacetonitrile, α-[3-[(2-(3,4-dimethoxyphenyl)ethyl] methylamino] propyl]-3,4-dimethoxy-α-(1-methylethyl) hydrochloride

2. HAZARD(S) IDENTIFICATION

| Emergency Overview | Verapamil Hydrochloride Injection is a solution containing verapamil hydrochloride, a calcium-channel blocking agent used in the treatment of hypertension, cardiac arrhythmias, and some cases of angina pectoris. In the workplace, this material should be considered potentially irritating to the eyes and respiratory tract and a potent drug. Based on clinical use, possible target organs include the cardiovascular system.  
| U.S. OSHA GHS Classification |  
| Physical Hazards |  
| Hazard Class | Not Classified  
| Hazard Category | Not Classified  
| Health Hazards |  
| Hazard Class | Not Classified  
| Hazard Category | Not Classified  
| Label Element(s) |  
| Pictogram | NA  
| Signal Word | NA  
| Hazard Statement(s) | NA  
| Precautionary Statement(s) |  
| Prevention | Do not breathe vapor or spray  
|            | Wash hands thoroughly after handling  
| Response | Get medical attention if you feel unwell.  
|           | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.  

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Product Name: Verapamil Hydrochloride Injection

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Active Ingredient Name</th>
<th>Chemical Formula</th>
<th>Approximate Percent by Weight</th>
<th>CAS Number</th>
<th>RTECS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verapamil Hydrochloride</td>
<td></td>
<td>C₂7H₃₈N₂O₄ • HCl</td>
<td>≤0.25</td>
<td>152-11-4</td>
<td>YV8320000</td>
</tr>
</tbody>
</table>

Non-hazardous ingredients include Water for Injection. Hazardous ingredients present at less than 1% include sodium chloride. Hydrochloric acid is used to adjust the pH.

### 4. FIRST AID MEASURES

**Eye Contact**
Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Skin Contact**
Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Inhalation**
Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**Ingestion**
Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

### 5. FIRE FIGHTING MEASURES

**Flammability**
None anticipated for this aqueous product.

**Fire & Explosion Hazard**
None anticipated for this aqueous product.

**Extinguishing Media**
As with any fire, use extinguishing media appropriate for primary cause of fire such as carbon dioxide, dry chemical extinguishing powder or foam.

**Special Fire Fighting Procedures**
No special provisions required beyond normal firefighting equipment such as flame and chemical resistant clothing and self contained breathing apparatus.

### 6. ACCIDENTAL RELEASE MEASURES

**Spill Cleanup and Disposal**
Isolate area around spill. Put on suitable protective clothing and equipment as specified by site spill control procedures. Absorb the liquid with suitable material and clean affected area with soap and water. Dispose of spill materials according to the applicable federal, state, or local regulations.

### 7. HANDLING AND STORAGE

**Handling**
No special handling required for hazard control under conditions of normal product use.

**Storage**
No special storage required for hazard control. For product protection, follow storage recommendations noted on the product case label, the primary container label, or the product insert.

**Special Precautions**
No special precautions required for hazard control.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA-PEL</th>
<th>ACGIH-TLV</th>
<th>AIHA WEEL</th>
<th>Hospira EEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verapamil Hydrochloride</td>
<td>8-hr TWA: Not</td>
<td>8-hr TWA: Not</td>
<td>8-hr TWA: Not</td>
<td>8-hr TWA: Not</td>
</tr>
<tr>
<td></td>
<td>Established</td>
<td>Established</td>
<td>Established</td>
<td>Established</td>
</tr>
</tbody>
</table>

Notes: OSHA PEL: US Occupational Safety and Health Administration – Permissible Exposure Limit
ACGIH TLV: American Conference of Governmental Industrial Hygienists – Threshold Limit Value.
AIHA WEEL: Workplace Environmental Exposure Level
EEL: Employee Exposure Limit.
TWA: 8-hour Time Weighted Average.

Respiratory Protection
Respiratory protection is normally not needed during intended product use. However, if the generation of dusts or aerosols is likely, and engineering controls are not considered adequate to control potential airborne exposures, the use of an approved air-purifying respirator with a HEPA cartridge (N95 or equivalent) is recommended under conditions where airborne dust or aerosol concentrations are not expected to be excessive. For uncontrolled release events, or if exposure levels are not known, provide respirators that offer a high protection factor such as a powered air purifying respirator or supplied air. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions require respirator use. Personnel who wear respirators should be fit tested and approved for respirator use as required.

Skin Protection
If skin contact with the product formulation is likely, the use of latex or nitrile gloves is recommended.

Eye Protection
Eye protection is normally not required during intended product use. However, if eye contact is likely to occur, the use of chemical safety goggles (as a minimum) is recommended.

Engineering Controls
Engineering controls are normally not needed during the normal use of this product.

9. PHYSICAL/CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/Physical State</td>
<td>Clear aqueous solution</td>
</tr>
<tr>
<td>Odor</td>
<td>NA</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>NA</td>
</tr>
<tr>
<td>pH</td>
<td>4.9 (4.0 to 6.5)</td>
</tr>
<tr>
<td>Melting point/Freezing Point</td>
<td>NA</td>
</tr>
<tr>
<td>Initial Boiling Point/Boiling Point Range</td>
<td>NA</td>
</tr>
<tr>
<td>Flash Point</td>
<td>NA</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NA</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>NA</td>
</tr>
<tr>
<td>Upper/Lower Flammability or Explosive Limits</td>
<td>NA</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>NA</td>
</tr>
<tr>
<td>Vapor Density (Air =1)</td>
<td>NA</td>
</tr>
<tr>
<td>Relative Density</td>
<td>NA</td>
</tr>
<tr>
<td>Solubility</td>
<td>NA</td>
</tr>
<tr>
<td>Partition Coefficient: n-octanol/water</td>
<td>NA</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>NA</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>NA</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NA</td>
</tr>
</tbody>
</table>
Product Name: Verapamil Hydrochloride Injection

10. STABILITY AND REACTIVITY

Reactivity
Not determined.

Chemical Stability
Stable under standard use and storage conditions.

Hazardous Reactions
Not determined

Conditions to Avoid
Not determined

Incompatibilities
Not determined

Hazardous Decomposition
Not determined. During thermal decomposition, it may be possible to generate irritating vapors and/or toxic fumes of carbon oxides (COx), nitrogen oxides (NOx), and hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity - Not determined for the product formulation. Information for the active ingredient is as follows:

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>Percent</th>
<th>Test Type</th>
<th>Route of Administration</th>
<th>Value</th>
<th>Units</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verapamil Hydrochloride</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>108, 150</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>163</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>140</td>
<td>mg/kg</td>
<td>Guinea Pig</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;400</td>
<td>mg/kg</td>
<td>Dog</td>
</tr>
<tr>
<td>Verapamil Hydrochloride</td>
<td>100</td>
<td>LD50</td>
<td>Intravenous</td>
<td>16</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.8</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
</tbody>
</table>

LD 50: Dosage that produces 50% mortality.

Occupational Exposure Potential
Information on the absorption of this product via inhalation or skin contact is not available. Avoid liquid aerosol generation and skin contact.

Signs and Symptoms
None anticipated from normal handling of this product. In clinical use, adverse effects on the heart include bradycardia, AV block, worsening heart failure, and transient asystole. Other adverse effects include nausea, constipation, hypotension, dizziness, flushing, headaches, fatigue, tinnitus, dyspnea, and peripheral edema. There have been reports of skin reactions and some cases of abnormal liver function and hepatotoxicity. Gingival hyperplasia has occurred. Hyperprolactinemia has been reported in some patients receiving verapamil. Gynecomastia has been reported rarely.

Aspiration Hazard
None anticipated from normal handling of this product.

Dermal Irritation/Corrosion
None anticipated from normal handling of this product.

Ocular Irritation/Corrosion
None anticipated from normal handling of this product. However, inadvertent contact of this product with eyes may produce irritation with redness and tearing.

Dermal or Respiratory Sensitization
None anticipated from normal handling of this product.

Reproductive Effects
None anticipated from normal handling of this product. Studies in female rats at daily dietary doses up to 5.5 times (55 mg/kg/day) the maximum recommended human dose did not show impaired fertility. Effects on male fertility have not been determined.
Product Name: Verapamil Hydrochloride Injection

11. TOXICOLOGICAL INFORMATION: continued

Reproductive Effects: Reproduction studies have been performed in rabbits and rats at oral verapamil doses up to 1.5 (15 mg/kg/day) and 6 (60 mg/kg/day) times the human oral daily dose, respectively, and have revealed no evidence of teratogenicity. In the rat, this dose was embryocidal and retarded fetal growth and development, probably because of adverse maternal effects reflected in reduced weight gains of the dams. This oral dose has also been shown to cause hypotension in rats.

Mutagenicity Verapamil was not mutagenic in the Ames test in 5 test strains at 3 mg per plate with or without metabolic activation.

Carcinogenicity Studies in rats using verapamil dosages of 6 times the recommended maximum human dosage for 18 months did not reveal evidence of carcinogenicity.

There was no evidence of a carcinogenic potential of verapamil administered in the diet of rats for 2 years at dosages of 10, 35, and 120 mg/kg per day or approximately 1x, 3.5x, and 12x, respectively, the maximum recommended human daily dose (480 mg per day or 9.6 mg/kg/day).

Carcinogen Lists
- IARC: Not listed
- NTP: Not listed
- OSHA: Not listed

Specific Target Organ Toxicity
- Single Exposure NA

Specific Target Organ Toxicity
- Repeat Exposure In chronic animal toxicology studies, verapamil caused lenticular and/or suture line changes at 30 mg/kg/day or greater, and frank cataracts at 62.5 mg/kg/day or greater in the beagle dog but not in the rat. Development of cataracts due to verapamil has not been reported in man. Based on clinical use, possible target organs include the cardiovascular system.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity Not determined for product.

Persistence/Biodegradability Not determined for product.

Bioaccumulation Not determined for product.

Mobility in Soil Not determined for product.

13. DISPOSAL CONSIDERATIONS

Waste Disposal All waste materials must be properly characterized. Further, disposal should be performed in accordance with the federal, state or local regulatory requirements.

Container Handling and Disposal Dispose of container and unused contents in accordance with federal, state and local regulations.
Product Name: Verapamil Hydrochloride Injection

14. TRANSPORTATION INFORMATION

<table>
<thead>
<tr>
<th>ADR/ADG/ DOT STATUS</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
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<tr>
<td>Hazard Class</td>
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<tr>
<td>UN Number</td>
<td>NA</td>
</tr>
<tr>
<td>Packing Group</td>
<td>NA</td>
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<tr>
<td>Reportable Quantity</td>
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ICAO/IATA STATUS Not regulated

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
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IMDG STATUS Not regulated

<table>
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<tbody>
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<tr>
<td>Reportable Quantity</td>
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</tbody>
</table>

Notes: DOT - US Department of Transportation Regulations

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>US TSCA Status</th>
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</tr>
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<tbody>
<tr>
<td>US CERCLA Status</td>
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<tr>
<td>US SARA 302 Status</td>
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<tr>
<td>US SARA 313 Status</td>
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<tr>
<td>US RCRA Status</td>
<td>Not listed</td>
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<tr>
<td>US PROP 65 (Calif.)</td>
<td>Not listed</td>
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</tbody>
</table>


GHS/CLP Classification* *In the EU, classification under GHS/CLP does not apply to certain substances and mixtures, such as medicinal products as defined in Directive 2001/83/EC, which are in the finished state, intended for the final user.

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
<th>Pictogram</th>
<th>Signal Word</th>
<th>Hazard Statement</th>
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<tbody>
<tr>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Prevention</td>
<td>Do not breathe vapor or spray</td>
<td>Wash hands thoroughly after handling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Get medical attention if you feel unwell.</td>
<td>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.</td>
<td></td>
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</tr>
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</table>
Product Name: Verapamil Hydrochloride Injection

15. REGULATORY INFORMATION: continued

**EU Classification***

*Medicinal products are exempt from the requirements of the EU Dangerous Preparations Directive.

- **Classification(s)**: NA
- **Symbol**: NA
- **Indication of Danger**: NA
- **Risk Phrases**: NA
- **Safety Phrases**:
  - S23: Do not breathe vapor/spray
  - S24: Avoid contact with the skin
  - S25: Avoid contact with eyes
  - S37/39: Wear suitable gloves and eye/face protection.

16. OTHER INFORMATION

Notes:

- **ACGIH TLV**: American Conference of Governmental Industrial Hygienists – Threshold Limit Value
- **CAS**: Chemical Abstracts Service Number
- **CERCLA**: US EPA law, Comprehensive Environmental Response, Compensation, and Liability Act
- **DOT**: US Department of Transportation Regulations
- **EEL**: Employee Exposure Limit
- **IATA**: International Air Transport Association
- **LD₅₀**: Dosage producing 50% mortality
- **NA**: Not applicable/Not available
- **NE**: Not established
- **NIOSH**: National Institute for Occupational Safety and Health
- **OSHA PEL**: US Occupational Safety and Health Administration – Permissible Exposure Limit
- **Prop 65**: California Proposition 65
- **RCRA**: US EPA, Resource Conservation and Recovery Act
- **RTECS**: Registry of Toxic Effects of Chemical Substances
- **SARA**: Superfund Amendments and Reauthorization Act
- **STEL**: 15-minute Short Term Exposure Limit
- **STOT - SE**: Specific Target Organ Toxicity – Single Exposure
- **STOT - RE**: Specific Target Organ Toxicity – Repeated Exposure
- **TSCA**: Toxic Substance Control Act
- **TWA**: 8-hour Time Weighted Average

**MSDS Coordinator**: Hospira GEHS
**Date Prepared**: October 19, 2012
**Date Revised**: June 02, 2014

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