**MATERIAL SAFETY DATA SHEET**

**Product Name:** Diltiazem Hydrochloride Injection

### 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

| Manufacturer Name And Address | Hospira Inc.  
|------------------------------|----------------|
| 275 North Field Drive        | Lake Forest, Illinois USA  
| 60045                        |                 |

**Emergency Telephone**

CHEMTREC: North America: 800-424-9300;  
International 1-703-527-3887; Australia (02) 8014 4880

**Hospira, Inc., Non-Emergency**

224-212-2000

**Product Name**

Diltiazem Hydrochloride Injection

**Synonyms**

1,5-benzothiazepin-4(5H)-one, 3-(acetyloxy)-5-[2-(dimethylamino)ethyl]-2, 3-dihydro-2-(4-methoxyphenyl)-, monohydrochloride,(+)-cis-.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Active Ingredient Name**

Diltiazem Hydrochloride

**Chemical Formula**

C_{22}H_{26}N_{2}O_{4}S• HCl

**Preparation**

Non-hazardous ingredients include Water for Injection and sorbitol. Hazardous ingredients present at less than 1% include citric acid, USP, sodium citrate dihydrate. Sodium hydroxide and/or hydrochloric acid may be added to adjust the pH.

<table>
<thead>
<tr>
<th>Component</th>
<th>Approximate Percent by Weight</th>
<th>CAS Number</th>
<th>RTECS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diltiazem Hydrochloride</td>
<td>0.5</td>
<td>33286-22-5</td>
<td>DL0310000</td>
</tr>
</tbody>
</table>

### 3. HAZARD INFORMATION

**Carcinogen List**

<table>
<thead>
<tr>
<th>Substance</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diltiazem Hydrochloride</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

**Emergency Overview**

Diltiazem Hydrochloride Injection is a solution containing diltiazem hydrochloride a calcium antagonist (calcium channel blocker) used to treat angina pectoris, variant angina and essential hypertension. It is also given parenterally to treat supraventricular tachyarrhythmia, hypertensive emergencies or atrial fibrillation. In the workplace, this material should be considered potentially irritating to the eyes and respiratory tract. Based on clinical use, possible target organs include the cardiovascular system, nervous system, liver, and possibly the fetus.

**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 known from occupational exposures. In clinical use, intravenous administration of diltiazem hydrochloride has produced a low incidence of lowered blood pressure (hypotension), decreased heart rate and alterations in cardiac function. Oral administration of diltiazem has
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produced a low incidence of headache, edema, asthenia, flushing, gastrointestinal upset, constipation, dizziness, decreased heart rate, alteration in cardiac function, hypersensitivity and rashes. Overdosage has resulted in bradycardia, hypotension, heart block and cardiac failure.

Medical Conditions Aggravated by Exposure

Pre-existing hypersensitivity to this material; pre-existing cardiovascular or liver ailments

<table>
<thead>
<tr>
<th>4. FIRST AID MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></td>
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<tr>
<td><strong>Skin contact</strong></td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>5. FIRE FIGHTING MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flammability</strong></td>
</tr>
<tr>
<td><strong>Fire &amp; Explosion Hazard</strong></td>
</tr>
<tr>
<td><strong>Extinguishing media</strong></td>
</tr>
<tr>
<td><strong>Special Fire Fighting Procedures</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. ACCIDENTAL RELEASE MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spill Cleanup and Disposal</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. HANDLING AND STORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Handling</strong></td>
</tr>
<tr>
<td><strong>Storage</strong></td>
</tr>
<tr>
<td><strong>Special Precautions</strong></td>
</tr>
</tbody>
</table>
Product Name: Diltiazem Hydrochloride Injection

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>mg/m³</th>
<th>ppm</th>
<th>µg/m³</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diltiazem Hydrochloride</td>
<td>Not Applicable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None Established</td>
</tr>
</tbody>
</table>

**Respiratory protection**

Respiratory protection is normally not needed during intended product use. However, if the generation of 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 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

**Appearance/Physical State**  Liquid

**Color**  Clear, colorless solution

**Odor**  NA

**Odor Threshold:**  NA

**pH:**  3.9 (3.7 to 4.1)

**Melting point/Freezing point:**  NA

**Initial Boiling Point/Boiling Point Range:**  NA

**Evaporation Rate:**  NA

**Flammability (solid, gas):**  NA

**Upper/Lower Flammability or Explosive Limits:**  NA

**Vapor Pressure:**  NA

**Vapor Density:**  NA

**Specific Gravity:**  NA

**Solubility:**  Diltiazem hydrochloride is soluble in water, methanol, and chloroform.

**Partition coefficient: n-octanol/water:**  NA

**Auto-ignition temperature:**  NA

**Decomposition temperature:**  NA
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 products Not determined. During thermal decomposition, it may be possible to generate irritating vapors and/or toxic fumes of carbon oxides (COx), nitrogen oxides (NOx), sulfur oxides (SOx) and hydrogen chloride.

Hazardous Polymerization Not anticipated to occur with this product.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Not determined for the product formulation. Information for the ingredients 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>
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</thead>
<tbody>
<tr>
<td>Diltiazem Hydrochloride</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>560</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>508</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td>Diltiazem Hydrochloride</td>
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<td>LD50</td>
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<td>38</td>
<td>mg/kg</td>
<td>Rat</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>58</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
</tbody>
</table>

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.

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

Reproductive Effects No evidence of impaired fertility was observed in a study in male and female rats at oral dosages of up to 100 mg/kg/day. Reproduction studies conducted in mice, rats, and rabbits using oral dosages ranging from five to ten times greater (on a mg/kg basis) than the daily recommended oral anti-anginal therapeutic dose has resulted in embryo and fetal lethality. These dosages, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human oral anti-anginal dose or greater.

Mutagenicity Diltiazem was not mutagenic in repair and reverse mutation assays in bacteria, did not produce chromosomal aberrations in cultured mammalian cells, and did not produce chromosomal aberrations in the micronucleus assay in mice.
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Carcinogenicity  A 24-month study in rats at oral dosage levels of up to 100 mg/kg/day, and a 21-month study in mice at oral dosage levels of up to 30 mg/kg/day showed no evidence of carcinogenicity.

Target Organ Effects  Based on clinical use, possible target organs include the cardiovascular system, nervous system, liver, and possibly the fetus.

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.

14. TRANSPORTATION INFORMATION

ADR/ADG/ DOT STATUS:  Not regulated

IMDG STATUS:  Not regulated

ICAO/IATA STATUS:  Not regulated

Transport Comments:  None

15. REGULATORY INFORMATION

USA Regulations

<table>
<thead>
<tr>
<th>Substance</th>
<th>TSCA Status</th>
<th>CERCLA Status</th>
<th>SARA 302 Status</th>
<th>SARA 313 Status</th>
<th>PROP 65 Status</th>
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<tbody>
<tr>
<td>Diltiazem Hydrochloride</td>
<td>Not Listed</td>
<td>Not Listed</td>
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</table>

RCRA Status  Not Listed

U.S. OSHA Classification  Target Organ Toxin

Possible Reproductive Toxin

Possible Irritant

GHS 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:
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Hazard Class: Not Applicable
Hazard Category: Not Applicable
Signal Word: Not Applicable
Symbol: Not Applicable


Response: 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. Wash hands after handling.

Get medical attention if you feel unwell.

EU Classification*

*Medicinal products are exempt from the requirements of the EU Dangerous Preparations Directive. Information provided below is for the pure drug substance Diltiazem Hydrochloride.

Classification(s): Not Applicable
Symbol: Not Applicable
Indication of Danger: Not Applicable
Risk Phrases: Not Applicable
Safety Phrases: S23 - Do not breathe vapor.
S24/25 - Avoid contact with skin and 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
TSCA Toxic Substance Control Act
TWA 8-hour Time Weighted Average
Product Name: Diltiazem Hydrochloride Injection

MSDS Coordinator: Hospira GEHS
Date Prepared: 09/15/2011
Obsolete Date: 10/21/2008

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