MATERIAL SAFETY DATA SHEET

Product Name: Calcium Chloride Injection

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

| Manufacturer Name And Address | Hospira Inc.  
| Address | 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 | Calcium Chloride Injection  
| Synonyms | Calcium Chloride Injection, Solution  

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Active Ingredient Name | Calcium Chloride Dihydrate  
| Chemical Formula | CaCl$_2$•2H$_2$O  
| Preparation | Non-hazardous ingredients include Water for Injection. Solution may contain hydrochloric acid and/or sodium hydroxide for pH adjustment.  

<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>Calcium Chloride Dihydrate</td>
<td>10</td>
<td>10035-04-8</td>
<td>EV9810000</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>Calcium Chloride Dihydrate</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

Emergency Overview

Calcium Chloride Injection is a solution containing calcium chloride, an essential mineral. In clinical use, calcium chloride is used in the management of hypocalcemia and calcium deficiency states resulting from dietary deficiency or ageing. 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, gastrointestinal system, kidneys and eyes.

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

In the workplace, calcium chloride should be considered potentially irritating to the eyes and respiratory tract. Solutions of calcium chloride are extremely irritating and should not be injected intramuscularly or subcutaneously since this can cause local reactions including sloughing or necrosis of the skin. Soft-tissue calcification has followed the use of calcium salts parenterally. In clinical use, oral calcium salts can cause gastrointestinal irritation. Rapid injection of calcium may cause vasodilation, hypotension, bradycardia, arrhythmias, syncope,
Product Name: Calcium Chloride Injection

and cardiac arrest. Excessive amounts of calcium salts may lead to hypercalcemia with symptoms including chalky taste, anorexia, nausea, vomiting, constipation, abdominal pain, muscle weakness, mental disturbances, polydipsia, polyuria, nephrocalcinosis, renal calculi, and, in severe cases, cardiac arrhythmias and coma.

Medical Conditions Aggravated by Exposure
Pre-existing hypersensitivity to this material and/or similar materials; pre-existing ventricular fibrillation, hypercalcemia, kidney, skin or eye ailments.

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.

Special Fire Fighting Procedures
No special provisions required beyond normal fire fighting 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 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 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.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure limits</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mg/m³ ppm µg/m³</td>
<td></td>
</tr>
<tr>
<td>Calcium Chloride Dihydrate</td>
<td>N/A N/A 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Sterile, non pyrogenic, hypertonic 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>6.3 (5.5 to 7.5)</td>
</tr>
<tr>
<td>Melting point/Freezing point</td>
<td>NA</td>
</tr>
<tr>
<td>Initial Boiling Point/Boiling Point</td>
<td>NA</td>
</tr>
<tr>
<td>Range</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</td>
<td>NA</td>
</tr>
<tr>
<td>Specific Gravity</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>
</tbody>
</table>
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 hydrogen chloride and calcium oxide.

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 1</th>
<th>Units 1</th>
<th>Species 1</th>
<th>Value 2</th>
<th>Units 2</th>
<th>Species 2</th>
<th>Value 3</th>
<th>Units 3</th>
<th>Species 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium Chloride Dihydrate</td>
<td>100</td>
<td>LD50</td>
<td>Intraperitoneal</td>
<td>20,500</td>
<td>mg/kg</td>
<td>Mouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>1000</td>
<td>mg/kg</td>
<td>Rat</td>
<td>1940</td>
<td>mg/kg</td>
<td>Mouse</td>
<td>1384</td>
<td>mg/kg</td>
<td>Rabbit</td>
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<tr>
<td>Calcium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Intravenous</td>
<td>42</td>
<td>mg/kg</td>
<td>Mouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Aspiration Hazard  
None anticipated from normal handling of this product. However, inadvertent aspiration of this product may produce severe respiratory irritation with coughing and shortness of breath.

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 severe irritation with pain, redness and tearing.

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

Reproductive Effects  
Animal reproduction studies have not been conducted with calcium chloride. FDA Pregnancy Category C.

Mutagenicity  
Studies to evaluate the mutagenic potential of this calcium chloride solution have not been conducted.

Carcinogenicity  
Studies to evaluate the carcinogenic potential of this calcium chloride solution have not been conducted.
Target Organ Effects Based on clinical use, possible target organs include the cardiovascular system, gastrointestinal system, kidneys, and eyes.

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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RCRA Status Not Listed
U.S. OSHA Classification Target Organ 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: 

*
Product Name: Calcium Chloride Injection

Hazard Class: Not Applicable
Hazard Category: Not Applicable
Signal Word: Not Applicable
Symbol: Not Applicable
Hazard Statement: H00 - 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 Calcium Chloride Dihydrate.*

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: Calcium Chloride Injection

MSDS Coordinator: Hospira GEHS
Date Prepared: 09/06/2011
Obsolete Date: 10/21/2008

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