MATERIAL SAFETY DATA SHEET

Product Name: Sodium Chloride Injection, Concentrate

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

| Manufacturer Name And Address | Hospira, Inc.  
| Address                      | 275 North Field Drive  
|                              | Lake Forest, Illinois 60045  
|                              | USA  
| Emergency Telephone          | CHEMTREC: 800-424-9300  
| Hospira, Inc., Non-Emergency  | 224-212-2055  
| Product Name                 | Sodium Chloride Injection, Concentrate  
| Synonyms                     | Table salt.

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Active Ingredient Name | Sodium Chloride  
| Chemical Formula       | NaCl  

<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>Sodium Chloride</td>
<td>1 to 24</td>
<td>7647-14-5</td>
<td>VZ4725000</td>
</tr>
</tbody>
</table>

Non-hazardous ingredients include water for injection. Hazardous ingredients present at less than 1% may include hydrochloric acid which is used to adjust the pH.

3. HAZARD INFORMATION

| Emergency Overview | Sodium Chloride Injection, Concentrate, contains sodium chloride. In clinical use, sodium chloride is used in the management of deficiencies of sodium and chloride ions in salt-losing conditions. In the workplace, concentrated sodium chloride solutions may be irritating to the eyes and respiratory tract. Possible target organs may include the eyes, cardiovascular system, gastrointestinal system and nervous system.  
|                   |  
| Occupational Exposure | Information on the absorption of this product via inhalation or skin contact is not available. Avoid liquid aerosol generation and skin contact.  
| Potential          |  
| Signs and Symptoms | No signs or symptoms from occupational exposure are known. In clinical use, gastrointestinal effects associated with acute oral ingestion of excessive amounts of sodium chloride include nausea, vomiting, diarrhea, and abdominal cramps. Excessive use of chloride salts may cause a loss of bicarbonate with an acidifying effect. Retention of excess sodium and accumulation of excess water may also occur and may lead to pulmonary and peripheral edema. Hypernatremia has rarely occurred with the use of saline for induction of emesis or for gastric lavage. However, hypernatremia may occur after inappropriate intravenous use of hypertonic saline. The most serious effect of hypernatremia is dehydration of the brain which causes somnolence and confusion progressing to convulsions, coma, respiratory failure, and death. Other symptoms include thirst, reduced salivation and lachrymation, fever, sweating, tachycardia, hypertension or hypotension, headache, dizziness, restlessness, irritability, weakness, and muscular twitching and rigidity.  
| Medical Conditions | Pre-existing cardiovascular or gastrointestinal ailments.  
| Aggravated by Exposure |  
| Carcinogen Lists: | IARC: Not listed  
|                    | NTP: Not listed  
|                    | OSHA: Not listed


Product Name: Sodium Chloride Injection, Concentrate

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 USP controlled room temperature storage recommendations noted on the product case label, the primary container label, or the product insert.

**Special Precautions**
Protect from freezing, light, and extreme heat.
## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Chloride</td>
<td>8-hr TWA: Not 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.
- STEL: 15-minute Short Term Exposure Limit.

#### 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. 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>A sterile, non-pyrogenic, concentrated 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>pH 4.8 (4.5 to 7.0)</td>
</tr>
<tr>
<td>Melting point/Freezing point</td>
<td>NA</td>
</tr>
<tr>
<td>Initial Boiling Point/Boiling</td>
<td>NA</td>
</tr>
<tr>
<td>Point 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</td>
<td>NA</td>
</tr>
<tr>
<td>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>Evaporation Rate</td>
<td>NA</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>NA</td>
</tr>
<tr>
<td>Solubility</td>
<td>Freely soluble in water; practically insoluble in dehydrated alcohol</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>
Product Name: Sodium Chloride Injection, Concentrate

10. STABILITY AND REACTIVITY

Reactivity
Not determined. None anticipated from this product.

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 sodium oxide.

Hazardous Polymerization
Not anticipated to occur with this product.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Not determined for the product formulation. Information for the 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>Sodium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>3000</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>4000</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Dermal</td>
<td>&gt; 10,000</td>
<td>mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>100</td>
<td>LC50(1hr)</td>
<td>Inhalation</td>
<td>&gt; 42,000</td>
<td>mg/m3</td>
<td>Rat</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Intraperitoneal</td>
<td>2600</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Intravenous</td>
<td>2602</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Intravenous</td>
<td>645</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
</tbody>
</table>

LD 50: Dosage that produces 50% mortality.

Aspiration Hazard
None anticipated from normal handling of this product.

Dermal Irritation/Corrosion
None anticipated from normal handling of this product. In animal studies, sodium chloride was reported to be a mild skin irritant. However, inadvertent contact of this product with skin is not anticipated to produce irritation.

Ocular Irritation/Corrosion
None anticipated from normal handling of this product. In animal studies, sodium chloride was reported to be a mild to moderate irritant. Inadvertent contact of this product with eyes may produce irritation with redness and discomfort.

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

Reproductive Effects
Physiological sodium chloride solutions are often used as negative controls in teratology experiments and do not appear to produce adverse effects on embryological development. Administration of sodium chloride has been reported not to be teratogenic in rats, hamsters, and pigs. Subcutaneous injection of 1900 or 2500 mg sodium chloride in pregnant mice increased the incidence of minor skeletal anomalies in the offspring. Increased neonatal body weight was reported in offspring of rats fed high (8%) salt diets when compared to the offspring of dams fed low salt diets.

Mutagenicity
Sodium chloride was negative in the Ames test, with and without metabolic activation. Sodium chloride was positive for genotoxicity in an in vitro mouse lymphoma assay.
11. TOXICOLOGICAL INFORMATION: continued

Carcinogenicity
The carcinogenic potential of sodium chloride has not been fully evaluated.

Target Organ Effects
Possible target organs may include the eyes, cardiovascular system, gastrointestinal system and nervous system.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity
Not determined for product.
LC50(96hr, flow through) = 9675-11,100 mg/L in freshwater fish
LC50(96hr, static) = 7341-17,550 mg/L in freshwater fish
LC50(24hr, static) = 13,750 - 14,125 mg/L in freshwater fish
LC50(48 hr) = 3310 mg/L in Daphnia magna.

Persistence/Biodegradability
Not determined for product.

Bioaccumulation
Not determined for product.

Mobility in Soil
Not determined for product.

Notes:
1. EC50: Concentration in water that produces 50% mortality in Daphnia sp.
2. LC50: Concentration in water that produces 50% mortality in fish.
3. EC50: Concentration in water that produces 50% inhibition of growth in algae.

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

DOT STATUS: Not regulated
Proper Shipping Name: NA
Hazard Class: NA
UN Number: NA
Packing Group: NA
Reportable Quantity: NA

ICAO/IATA STATUS: Not regulated
Proper Shipping Name: NA
Hazard Class: NA
UN Number: NA
Packing Group: NA
Reportable Quantity: NA

IMDG STATUS: Not regulated
Proper Shipping Name: NA
Hazard Class: NA
UN Number: NA
Packing Group: NA
Reportable Quantity: NA

Notes: DOT - US Department of Transportation Regulations
### 15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Status</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA Status</td>
<td>Exempt. However, sodium chloride is listed on the TSCA inventory.</td>
</tr>
<tr>
<td>CERCLA Status</td>
<td>Not listed</td>
</tr>
<tr>
<td>SARA 302 Status</td>
<td>Not listed</td>
</tr>
<tr>
<td>SARA 313 Status</td>
<td>Not listed</td>
</tr>
<tr>
<td>RCRA Status</td>
<td>Not listed</td>
</tr>
<tr>
<td>PROP 65 (Calif.)</td>
<td>Not listed</td>
</tr>
</tbody>
</table>


**U.S. OSHA Classification**  
Eye Irritant  
Target Organ Toxin

**GHS Classification**

- **Hazard Class**  
  - Acute Oral Toxicity
  - Eye Irritation
  - Target Organ Toxicity

- **Hazard Category**  
  - Unclassified 2B 2

- **Symbol**

- **Signal Word**  
  - Warning

- **Hazard Statement**
  - Causes eye irritation
  - May cause damage to the eyes, cardiovascular system, gastrointestinal system and nervous system through prolonged or repeated exposure.

**Prevention:**  
Do not breathe mist or spray.

**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.
Product Name: Sodium Chloride Injection, Concentrate

15. REGULATORY INFORMATION: continued

EU Classification*
*Medicinal products are exempt from the requirements of the EU Dangerous Preparations Directive. Information provided below is for the pure substance sodium chloride.

Classification(s): Irritant

Symbol: 

Indication of Danger Xi

Risk Phrases: R36/37 - Irritating to eyes and respiratory system

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
TSCA Toxic Substance Control Act
TWA 8-hour Time Weighted Average

MSDS Coordinator: Global Occupational Toxicology
Date Prepared: September 15, 2005
Date Revised: October 23, 2008

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