MATERIAL SAFETY DATA SHEET

Product Name: Potassium Chloride Injection Concentrate, USP

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  Potassium Chloride Injection Concentrate, USP

Synonyms  None

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active Ingredient Name  Potassium Chloride

Chemical Formula  KCl

Preparation  Non-hazardous ingredients include Water for Injection. Hydrochloric acid may be used 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>Potassium Chloride</td>
<td>&lt;15</td>
<td>7447-40-7</td>
<td>TS8050000</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>Potassium Chloride</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

Emergency Overview  Potassium Chloride Injection Concentrate, USP, is a solution containing potassium chloride. Potassium is the chief cation of body cells (160 mEq/liter of intracellular water) and is concerned with the maintenance of body fluid composition and electrolyte balance. In clinical use, it is indicated in the treatment of potassium deficiency states when oral replacement is not feasible. In the workplace, this material should be considered potentially irritating to the eyes, respiratory tract and gastrointestinal tract. Based on clinical use, potential target organs include the gastrointestinal system and cardiovascular system.

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, this product should be considered potentially irritating to the eyes and respiratory system. In clinical use, pain or phlebitis may occur when given intravenously via peripheral veins. Excessive doses of potassium may lead to the development of hyperkalemia, especially in patients with renal impairment. Symptoms include paraesthesia of the extremities,
Product Name: Potassium Chloride Injection Concentrate, USP

muscle weakness, paralysis, cardiac arrhythmias, heart block, cardiac arrest, and confusion. Cardiac toxicity is of particular concern after intravenous dosage. Nausea, vomiting, diarrhea, and abdominal cramps may occur with oral potassium salts. There have been numerous reports of gastrointestinal ulceration, sometimes with hemorrhage and perforation or with the late formation of strictures, after the use of enteric-coated tablets of potassium chloride. Ulceration has also occurred after the use of sustained-release tablets.

Medical Conditions Aggravated by Exposure: Hypersensitivity to the material and/or similar materials. Pre-existing cardiovascular system or gastrointestinal system 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 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 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.
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>Potassium Chloride</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

<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>Clear</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>NA</td>
</tr>
<tr>
<td>pH</td>
<td>4.6 (4.0 to 8.0)</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>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>
Product Name: Potassium Chloride Injection Concentrate, USP

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
Violent reaction with BrF3 (H2SO4 and KMnO4)

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

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>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>2600</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1500, 383</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td>Potassium Chloride</td>
<td>100</td>
<td>LD50</td>
<td>Intravenous</td>
<td>142, 39</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>117</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
</tbody>
</table>

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

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
Animal reproduction studies have not been conducted with potassium chloride.

Mutagenicity
Potassium chloride was negative in the Ames test.

Carcinogenicity
Potassium chloride was negative in a two year dietary carcinogenicity study in male rats.

Target Organ Effects
Based on clinical use, potential target organs include the gastrointestinal system and cardiovascular system.
### 12. ECOLOGICAL INFORMATION

#### Aquatic Toxicity

<table>
<thead>
<tr>
<th>Species</th>
<th>Conditions</th>
<th>Concentration</th>
<th>Confidence Limits</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceriodaphnia dubia (Water flea)</td>
<td>freshwater; static</td>
<td>630000 ug/L (95% confidence limit: 580000 to 670000 ug/L)</td>
<td>for 48 hr /total.</td>
<td></td>
</tr>
<tr>
<td>Chironomus riparius (Midge)</td>
<td>freshwater; /conditions of bioassay not specified/</td>
<td>4.81 g/L (95% confidence limit: 3.93 to 5.68 g/L)</td>
<td>for 96 hr /total.</td>
<td></td>
</tr>
<tr>
<td>Daphnia magna (Water flea)</td>
<td>freshwater; static</td>
<td>29 mg/L</td>
<td>for 96 hr /total.</td>
<td></td>
</tr>
<tr>
<td>Hyalella azteca (Scud)</td>
<td>freshwater; flow-through</td>
<td>0.41 g/L (95% confidence limit: 0.35 to 0.49 g/L)</td>
<td>for 96 hr /total.</td>
<td></td>
</tr>
<tr>
<td>Gambusia affinis (Western mosquitofish, female)</td>
<td>freshwater; static</td>
<td>435000 ug/L</td>
<td>for 96 hr /total.</td>
<td></td>
</tr>
<tr>
<td>Lepomis macrochirus (Bluegill, size 5.3-7.2 cm, wt 3.5-3.9 g)</td>
<td>freshwater; static</td>
<td>2010000 ug/L (95% confidence limit: 1223000 to 2119000 ug/L)</td>
<td>for 48 hr /total.</td>
<td></td>
</tr>
<tr>
<td>Oncorhynchus mykiss (Rainbow trout, donaldson trout, size 5.0-6.0 cm)</td>
<td>freshwater; static</td>
<td>1191000 ug/L (95% confidence limit: 923000 to 1536000 ug/L)</td>
<td>for 24 hr /99% total.</td>
<td></td>
</tr>
<tr>
<td>Oncorhynchus mykiss (Rainbow trout, donaldson trout, wt 0.8-1.2 g)</td>
<td>freshwater; static</td>
<td>1610000 ug/L (95% confidence limit: 1223000 to 2119000 ug/L)</td>
<td>for 48 hr /total.</td>
<td></td>
</tr>
<tr>
<td>Pimephales promelas (Fathead minnow)</td>
<td>freshwater; static</td>
<td>880000 ug/L (95% confidence limit: 750000 to 1020000 ug/L)</td>
<td>for 96 hr /total.</td>
<td></td>
</tr>
</tbody>
</table>

#### 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: Potassium Chloride Injection Concentrate, USP

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>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Chloride</td>
<td>Listed</td>
<td>Exempt</td>
<td>Exempt</td>
<td>Exempt</td>
<td>Exempt</td>
</tr>
</tbody>
</table>

RCRA Status: Not Listed

U.S. OSHA Classification
Possible 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:

Hazard Class: Not Applicable
Hazard Category: Not Applicable
Signal Word: Not Applicable
Symbol: Not Applicable
Hazard Statement: 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 Potassium Chloride

Classification(s): Not Applicable
Symbol: Not Applicable
Indication of Danger: Not Applicable
Risk Phrases: Not Applicable
Product Name: Potassium Chloride Injection Concentrate, USP

Safety Phrases:
S23 - Do not breathe vapor.
S24 - Avoid contact with 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: Hospira GEHS
Date Prepared: 11/01/2011
Obsolete Date: 10/21/2008

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