MATERIAL SAFETY DATA SHEET

Product Name: 5% Alcohol in 5% Dextrose Injection, USP

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 - 61-290372994; UK - 44-870-8200418 |

Hospira, Inc., Non-Emergency  
224-212-2000

| Product Name | 5% Alcohol in 5% Dextrose Injection, USP |
| Synonyms | None |

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Active Ingredient Name | Ethyl Alcohol |
| Chemical Formula | CH₃CH₂OH |
| Preparation | Non-hazardous ingredients include Water for Injection and dextrose. |

<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>Ethyl Alcohol</td>
<td>5</td>
<td>64-17-5</td>
<td>KQ6300000</td>
</tr>
</tbody>
</table>

3. HAZARD INFORMATION

<table>
<thead>
<tr>
<th>Carcinogen List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emergency Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% Alcohol in 5% Dextrose Injection, USP is a sterile, nonpyrogenic, hypertonic solution containing ethyl alcohol and dextrose in water for injection. In clinical use, it is intended for intravenous administration. In the workplace, this material should be considered a combustible liquid and potentially irritating to the eyes and respiratory tract. Based on clinical use, possible target organs include the central nervous system, liver; fetus.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupational Exposure Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information on the absorption of this product via inhalation or skin contact is not available. Avoid liquid aerosol generation and skin contact.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>No signs or symptoms from occupational exposure are known. This product contains ethyl alcohol, which, in large amounts, can depress the central nervous system, can cause liver injury, cause dependency and possibly affect the unborn. During clinical use, adverse effects may include nausea, vomiting, flushing, depression, drowsiness, impaired perception, incoordination and stupor. Excessive clinical use can result in electrolyte imbalance, hyperglycemia and hyperosmolar syndrome.</td>
</tr>
</tbody>
</table>
Product Name: 5% Alcohol in 5% Dextrose Injection, USP

Medical Conditions Aggravated by Exposure
Pre-existing nervous system and liver ailments; epilepsy; alcohol addiction, fluid/electrolyte imbalances, cirrhosis intolerance; possibly pregnancy.

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
Estimated flashpoint of 62°C (144°F).

Fire & Explosion Hazard
This product should be considered a combustible liquid.

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 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. Keep product away from sources of ignition.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

<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>Ethyl Alcohol</td>
<td>ACGIH 8 Hr TLV</td>
<td>N/A</td>
<td>1000</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>US OSHA 8 Hr PEL</td>
<td>N/A</td>
<td>1000</td>
<td>1900</td>
<td></td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>Australia NOHSC</td>
<td>N/A</td>
<td>1000</td>
<td>N/A</td>
<td></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) with an organic vapor cartridge 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.

**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:**

4.5 (3.5 to 6.5)

**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:**

LEL: 3.3% UEL: 19% based on ethanol

**Vapor Pressure:**

43 mm Hg at 23°C for ethyl alcohol

**Vapor Density:**

1.59 for ethyl alcohol

**Specific Gravity:**

NA

**Solubility:**

Water and alcohol

**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).

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>Ethyl Alcohol</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>3450</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6300</td>
<td>mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7060-9000</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>100</td>
<td>LD50</td>
<td>Intravenous</td>
<td>1440</td>
<td>mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1973, 2209</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>100</td>
<td>LC50 (10h)</td>
<td>Inhalation</td>
<td>20,000</td>
<td>ppm</td>
<td>Rat</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>100</td>
<td>LD50 (4h)</td>
<td>Inhalation</td>
<td>39,000</td>
<td>mg/m3</td>
<td>Mouse</td>
</tr>
</tbody>
</table>

Aspiration Hazard
None anticipated from normal handling of this product. Inadvertent inhalation of vapors or aerosols may produce respiratory irritation and coughing.

Dermal Irritation/Corrosion
None anticipated from normal handling of this product. Ethanol may produce mild skin irritation with redness and dryness.

Ocular Irritation/Corrosion
None anticipated from normal handling of this product. Inadvertent contact of this product with eyes may produce irritation with redness and tearing. Exposure to ethanol has produced severe eye irritation in studies in animals.

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

Reproductive Effects
None anticipated from normal handling of this product. Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Chronic prenatal exposure to ethanol has been associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome".

Mutagenicity
Ethanol is genotoxic in some test systems and it has been proposed that the genotoxic effects of ethanol are mediated via its metabolite, acetaldehyde.
Product Name: 5% Alcohol in 5% Dextrose Injection, USP

Carcinogenicity

The International Agency for Research on Cancer (IARC) has classified alcoholic beverages as Group 1 – carcinogenic to humans.

Target Organ Effects

Based on clinical use, possible target organs include the central nervous system, liver; fetus.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Not determined for product

LC50(24 hr) = 12,900 - 15,300 mg/L in rainbow trout for ethanol
LC50 (24 hr) = 11,200 mg/L in fingerling trout for ethanol
LC50(48 hr) = 9,268 - 14,221 mg/L in Daphnia magna for ethanol
EC50 = 9310 mg/L in Chlorella pyrenoidosa (green algae) for ethanol

Persistence/Biodegradability

Not determined for product.

Ethanol was reported to be degraded between 45% and 74% in five days in two aqueous biodegradation assays.

Bioaccumulation

Not determined for product.

Because of its low octanol: water partition coefficient, ethanol is not anticipated to bioaccumulate.

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
Product Name: 5% Alcohol in 5% Dextrose Injection, USP

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>Ethyl Alcohol</td>
<td>Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Listed</td>
</tr>
</tbody>
</table>

RCRA Status: Not Listed  
U.S. OSHA Classification: 
- Target Organ Toxin  
- Possible Reproductive Toxin  
- Possible Irritant  
- Possible Combustible Liquid

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  
Prevention: Do not breathe vapor or spray.  
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 Ethyl Alcohol.

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:

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

MSDS Coordinator: Hospira GEHS  
Date Prepared: 10/17/2012  
Obsolete Date: 09/23/2011

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