MATERIAL SAFETY DATA SHEET

Product Name: Anticoagulant Citrate Phosphate Dextrose Solution, 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 Anticoagulant Citrate Phosphate Dextrose Solution, USP
Synonyms CDP Solution

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active Ingredient Name
Dextrose, Monohydrate, USP
Sodium Citrate Dihydrate
Monobasic Sodium Phosphate
Citric Acid Anhydrous

Chemical Formula
Citric Acid, USP - CH2(COOH)(OH)(COOH)CH2COOH
Sodium Citrate, Dihydrate - CH2(COONa)(OH)(COONa)CH2COONa • 2H2O
Monobasic Sodium Phosphate Monohydrate - NaH2PO4 • H2O
D-glucose monohydrate - C6H12O6 • H2O

Preparation
Non-hazardous ingredients include Water for Injection.

<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>Dextrose, Monohydrate, USP</td>
<td>&lt;3</td>
<td>14431-43-7</td>
<td>NA</td>
</tr>
<tr>
<td>Sodium Citrate Dihydrate</td>
<td>&lt;3</td>
<td>6132-04-3</td>
<td>NA</td>
</tr>
<tr>
<td>Monobasic Sodium Phosphate</td>
<td>&lt;0.3</td>
<td>7558-80-7</td>
<td>WA1900000</td>
</tr>
<tr>
<td>Citric Acid Anhydrous</td>
<td>&lt;0.3</td>
<td>77-92-9</td>
<td>GE7350000</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>Citric Acid Anhydrous</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Dextrose, Monohydrate, USP</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
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<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Sodium Citrate Dihydrate</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

Emergency Overview
Anticoagulant Citrate Phosphate Dextrose Solution, USP, is an anticoagulant solution for use in autologous blood transfusion procedures. The citrate in the solution chelates calcium, making calcium unavailable to the coagulation system in the blood. In the workplace, this product may be irritating to the eyes. Based on clinical use, possible target organs include the blood and cardiovascular system.
Product Name: Anticoagulant Citrate Phosphate Dextrose Solution, USP

Occupational Exposure Potential

Information on the absorption of this product via inhalation or skin contact is not available. Avoid aerosol generation and skin contact.

Signs and Symptoms

None known from workplace exposures. In clinical use, if citrate anticoagulant blood is administered by rapid autotransfusion, citrate toxicity and circulatory depression may occur in patients with signs including hypocalcemia, facial flushing, muscle spasms, chest pain, and hypotension.

Medical Conditions Aggravated by Exposure

Pre-existing sensitivity to components in the product; pre-existing hematological or cardiovascular system disorders; pre-existing diabetes.

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 from this aqueous product.

Fire & Explosion Hazard

None anticipated from 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 the area and contain around the 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
Product Name: Anticoagulant Citrate Phosphate Dextrose Solution, USP

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>Type</th>
<th>mg/m3</th>
<th>ppm</th>
<th>µg/m3</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric Acid Anhydrous</td>
<td>Not Applicable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None Established</td>
</tr>
<tr>
<td>Monobasic Sodium Phosphate</td>
<td>Not Applicable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None Established</td>
</tr>
<tr>
<td>Sodium Citrate Dihydrate</td>
<td>Not Applicable</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>None Established</td>
</tr>
<tr>
<td>Dextrose, Monohydrate, USP</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>Appearance/Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>NA</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td>NA</td>
</tr>
<tr>
<td>pH</td>
<td>5.6 (5.0 to 6.0)</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>Soluble in water</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water:</td>
<td>NA</td>
</tr>
</tbody>
</table>
Product Name: Anticoagulant Citrate Phosphate Dextrose Solution, USP

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
NA

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 material.

## 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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<tbody>
<tr>
<td>Dextrose (anhydrous)</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>25,800</td>
<td>mg/kg</td>
<td>Rat</td>
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<tr>
<td>Monobasic Sodium Phosphate Monohydrate</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>8290</td>
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<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oral</td>
<td>&gt; 2000</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dermal</td>
<td>&gt; 7490</td>
<td>mg/kg</td>
<td>Rabbit</td>
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<tr>
<td>Sodium Citrate Dihydrate</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>Citric Acid Anhydrous</td>
<td>100</td>
<td>LD50</td>
<td>Oral</td>
<td>3000</td>
<td>mg/kg</td>
<td>Rat</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Oral</td>
<td>5040</td>
<td>mg/kg</td>
<td>Mouse</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Oral</td>
<td>7280</td>
<td>mg/kg</td>
<td>Mouse</td>
</tr>
</tbody>
</table>

### Aspiration Hazard
None anticipated from normal handling of this product.

### Dermal Irritation/Corrosion
Not anticipated from normal handling of this product.

### Ocular Irritation/Corrosion
Not anticipated from normal use of this product. However, inadvertent contact of this product with the eyes may produce irritation with redness and discomfort.

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

### Reproductive Effects
Reproduction studies in animals have not been conducted with this product.

### Mutagenicity
Studies to assess the genotoxic potential of this product have not been conducted.
Product Name: Anticoagulant Citrate Phosphate Dextrose Solution, USP

Carcinogenicity
Studies to assess the carcinogenic potential of this product have not been conducted.

Target Organ Effects
Based on clinical use, possible target organs include the blood and cardiovascular system.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity
Not determined for product Citric Acid LC50 (96 hrs, static) = 1516 - 2600 mg/L in freshwater fish EC50(72 hrs) = 120 mg/L in Daphnia magna EC3 (7 days) = 640 mg/L in algae Sodium Phosphate LC0 (48 hrs, static) = 2400 mg/L in fish

Persistence/Biodegradability
Not determined for product Citric acid is considered readily biodegradable. Approximately 98% was degraded after 48 hours (OECD Guideline 302B, domestic, non-adapted sewage).

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 Established

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>
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<td>Citric Acid Anhydrous</td>
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</tbody>
</table>
Product Name: Anticoagulant Citrate Phosphate Dextrose Solution, USP

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:

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.

EU Classification:
*Medicinal products are exempt from the requirements of the EU Dangerous Preparations Directive. Information provided below is for the pure drug substance Dextrose, Monohydrate, USP
Sodium Citrate Dihydrate
Monobasic Sodium Phosphate
Citric Acid Anhydrous

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
Product Name: Anticoagulant Citrate Phosphate Dextrose Solution, USP

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: 09/01/2011
Obsolete Date: 03/21/2008

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