

SAFETY DATA SHEETS

This SDS packet was issued with item:

078905918

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

078416527 078905917 078914352

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.

Component	Approximate Percent by Weight	CAS Number	RTECS Number
Potassium Chloride	<15	7447-40-7	TS8050000

3. HAZARD INFORMATION

Carcinogen List

Substance	IARC	NTP	OSHA
Potassium Chloride	Not Listed	Not Listed	Not Listed

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.
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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.
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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.

Product Name: Potassium Chloride Injection Concentrate, USP**Special Precautions**

No special precautions required for hazard control.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure Guidelines**

Component	Exposure limits				
	Type	mg/m ³	ppm	µg/m ³	Note
Potassium Chloride	Not Applicable	N/A	N/A	N/A	None Established

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

Appearance/Physical State	Liquid
Color	Clear
Odor	None
Odor Threshold:	NA
pH:	4.6 (4.0 to 8.0)
Melting point/Freezing point:	NA
Initial Boiling Point/Boiling Point	NA
Range:	
Evaporation Rate:	NA
Flammability (solid, gas):	NA
Upper/Lower Flammability or	NA
Explosive Limits:	
Vapor Pressure:	NA
Vapor Density:	NA
Specific Gravity:	NA
Solubility:	NA
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	Violent reaction with BrF ₃ (H ₂ SO ₄ and KMnO ₄)
Hazardous decomposition products	Not determined. During thermal decomposition, it may be possible to generate irritating vapors and/or toxic fumes of carbon oxides (CO _x) and nitrogen oxides (NO _x).
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:

Ingredient(s)	Percent	Test Type	Route of Administration	Value	Units	Species
Potassium Chloride	100	LD50	Oral	2600 1500, 383	mg/kg mg/kg	Rat Mouse
Potassium Chloride	100	LD50	Intravenous	142, 39 117	mg/kg mg/kg	Rat Mouse

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

LC50; Species: Ceriodaphnia dubia (Water flea); Conditions: freshwater; static; Concentration: 630000 ug/L (95% confidence limit: 580000 to 670000 ug/L) for 48 hr /total.

LC50; Species: Chironomus riparius (Midge); Conditions: freshwater; /conditions of bioassay not specified/; Concentration: 4.81 g/L (95% confidence limit: 3.93 to 5.68 g/L) for 96 hr /total.

LC50; Species: Daphnia magna (Water flea); Conditions: freshwater; static; Concentration: 29 mg/L for 96 hr /total.

LC50; Species: Hyalella azteca (Scud); Conditions: freshwater; flow-through; Concentration: 0.41 g/L (95% confidence limit: 0.35 to 0.49 g/L) for 96 hr /total.

LC50; Species: Hyalella azteca (Scud); Conditions: freshwater; flow-through; Concentration: 0.54 g/L for 48 hr /total.

LC50; Species: Gambusia affinis (Western mosquitofish, female); Conditions: freshwater; static; Concentration: 435000 ug/L for 96 hr /total.

LC50; Species: Lepomis macrochirus (Bluegill, size 5.3-7.2 cm, wt 3.5-3.9 g); Conditions: freshwater; static; Concentration: 2010000 ug/L for 96 hr; Effect: mortality, survival /total.

LC50; Species: Oncorhynchus mykiss (Rainbow trout,donaldson trout, size 5.0-6.0 cm); Conditions: freshwater; static; Concentration: 1191000 ug/L (95% confidence limit: 923000 to 1536000 ug/L) for 24 hr /99% total.

LC50; Species: Oncorhynchus mykiss (Rainbow trout,donaldson trout, wt 0.8-1.2 g); Conditions: freshwater; static; Concentration: 1610000 ug/L (95% confidence limit: 1223000 to 2119000 ug/L) for 48 hr /total.

LC50; Species: Pimephales promelas (Fathead minnow); Conditions: freshwater; static; Concentration: 880000 ug/L (95% confidence limit: 750000 to 1020000 ug/L) for 96 hr /total.

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

Substance	TSCA Status	CERCLA Status	SARA 302 Status	SARA 313 Status	PROP 65 Status
Potassium Chloride	Listed	Exempt	Exempt	Exempt	Exempt

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

Prevention P260 - Do not breathe dust/fume/gas/mist/vapors/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 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

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Disclaimer:

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SAFETY DATA SHEET

Product Name: Potassium Chloride Injection Concentrate, USP

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer Name And Address	Hospira, Inc. 275 North Field Drive Lake Forest, Illinois 60045 USA
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	Potassium Chloride Injection Concentrate, USP
Synonyms	None

2. HAZARD(S) IDENTIFICATION

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.
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U.S. OSHA GHS Classification

Physical Hazards	Hazard Class	Hazard Category
	Not Classified	Not Classified
Health Hazards	Hazard Class	Hazard Category
	Eye Damage / Irritation	2A

Label Element(s)

Pictogram



Signal Word

Warning

Hazard Statement(s)

Causes serious eye irritation

Precautionary Statement(s)

Prevention

Do not breathe vapor or spray
Wear eye protection/face protection
Wash hands thoroughly after handling

Response

Get medical attention if you feel unwell.

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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Active Ingredient Name Potassium Chloride
Chemical Formula KCl

Component	Approximate Percent by Weight	CAS Number	RTECS Number
Potassium Chloride	<15	7447-40-7	TS8050000

Non-hazardous ingredients include Water for Injection. Hydrochloric acid may be used to adjust the pH.

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 such as carbon dioxide, dry chemical extinguishing powder or foam.

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 control 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.

Special Precautions No special precautions required for hazard control.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Component	Exposure Limits			
	OSHA-PEL	ACGIH-TLV	AIHA WEEL	Hospira EEL
Potassium Chloride	8-hr TWA: Not Established	8-hr TWA: Not Established	8-hr TWA: Not Established	8-hr TWA: Not Established

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.

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

Appearance/Physical State	Clear solution
Odor	NA
Odor Threshold	NA
pH	4.6 (4.0 to 8.0)
Melting point/Freezing Point	NA
Initial Boiling Point/Boiling Point Range	NA
Flash Point	NA
Evaporation Rate	NA
Flammability (solid, gas)	NA
Upper/Lower Flammability or Explosive Limits	NA
Vapor Pressure	NA
Vapor Density (Air =1)	NA
Relative Density	NA
Solubility	NA
Partition Coefficient: n-octanol/water	NA
Auto-ignition Temperature	NA
Decomposition Temperature	NA
Viscosity	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	Violent reaction with BrF ₃ (H ₂ SO ₄ and KMnO ₄)
Hazardous Decomposition Products	Not determined. During thermal decomposition, it may be possible to generate irritating vapors and/or toxic fumes of chloride.
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:

Ingredient(s)	Percent	Test Type	Route of Administration	Value	Units	Species
Potassium Chloride	100	LD50	Oral	2600 1500, 383	mg/kg mg/kg	Rat Mouse
Potassium Chloride	100	LD50	Intravenous	142, 39 117	mg/kg mg/kg	Rat Mouse

LD 50: Dosage that produces 50% mortality.

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	None anticipated from normal handling of this product. 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, 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.
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 severe irritation with redness and tearing.
Dermal or Respiratory Sensitization	None anticipated from normal handling of this product.
Reproductive Effects	None anticipated from normal handling of this product. Animal reproduction studies have not been conducted with potassium chloride.

11. TOXICOLOGICAL INFORMATION: continued

Mutagenicity	Potassium chloride was negative in the Ames test.		
Carcinogenicity	Potassium chloride was negative in a two year dietary carcinogenicity study in male rats.		
Carcinogen Lists	IARC: Not listed	NTP: Not listed	OSHA: Not listed
Specific Target Organ Toxicity – Single Exposure	NA		
Specific Target Organ Toxicity – Repeat Exposure	Based on clinical use, potential target organs include the gastrointestinal system and cardiovascular system.		

12. ECOLOGICAL INFORMATION

Aquatic Toxicity	<p>Not determined for product. Information for potassium chloride is as follows:</p> <p>LC50; Species: Ceriodaphnia dubia (Water flea); Conditions: freshwater; static; Concentration: 630000 ug/L (95% confidence limit: 580000 to 670000 ug/L) for 48 hr /total.</p> <p>LC50; Species: Ceriodaphnia dubia (Water flea); Conditions: freshwater; static; Concentration: 630000 ug/L (95% confidence limit: 580000 to 630000 ug/L) for 24 hr /total.</p> <p>LC50; Species: Chironomus riparius (Midge); Conditions: freshwater; /conditions of bioassay not specified/; Concentration: 4.81 g/L (95% confidence limit: 3.93 to 5.68 g/L) for 96 hr /total.</p> <p>LC50; Species: Chironomus tentans (Midge, size 1.56 mm, 1st instar); Conditions: freshwater; static; Concentration: 1250000 ug/L for 96 hr /total.</p> <p>LC50; Species: Chironomus tentans (Midge, size 4.42 mm, 2nd-3rd instar); Conditions: freshwater; static; Concentration: 1770000 ug/L (95% confidence limit: 590000 to 5260000 ug/L) for 96 hr /total.</p> <p>LC50; Species: Chironomus tentans (Midge, size 6.07 mm, 3rd instar); Conditions: freshwater; static; Concentration: 2890000 ug/L (95% confidence limit: 2390000 to 3500000 ug/L) for 96 hr /total.</p> <p>LC50; Species: Chironomus tentans (Midge, size 5.86 mm, 3rd instar); Conditions: freshwater; static; Concentration: 3170000 ug/L (95% confidence limit: 2290000 to 4400000 ug/L) for 96 hr /total.</p> <p>LC50; Species: Chironomus tentans (Midge, size 5.78 mm, 3rd instar); Conditions: freshwater; static; Concentration: 5000000 ug/L (95% confidence limit: 4160000 to 6010000 ug/L) for 96 hr /total.</p> <p>LC50; Species: Chironomus tentans (Midge, size 5.01 mm, 3rd instar); Conditions: freshwater; static; Concentration: 5110000 ug/L (95% confidence limit: 4180000 to 6240000 ug/L) for 96 hr /total.</p> <p>LC50; Species: Chironomus tentans (Midge, size 9.41 mm); Conditions: freshwater; static; Concentration: 5300000 ug/L (95% confidence limit: 4330000 to 6520000 ug/L) for 96 hr /total.</p>
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12. ECOLOGICAL INFORMATION: continued

Aquatic Toxicity (continued)

LC50; Species: Chironomus tentans (Midge, size 8.67 mm); Conditions: freshwater; static; Concentration: 5360000 ug/L (95% confidence limit: 4430000 to 6490000 ug/L) for 96 hr /total

LC50; Species: Chironomus tentans (Midge, size 10.87 mm, 3rd-4th instar); Conditions: freshwater; static; Concentration: 6190000 ug/L (95% confidence limit: 5370000 to 7130000 ug/L) for 96 hr /total.

LC50; Species: Chironomus tentans (Midge, size 9.42 mm, 3rd-4th instar); Conditions: freshwater; static; Concentration: 6200000 ug/L (95% confidence limit: 4800000 to 7890000 ug/L) for 96 hr /total.

LC50; Species: Chironomus tentans (Midge, size 7.84 mm, 3rd instar); Conditions: freshwater; static; Concentration: 6280000 ug/L (95% confidence limit: 5260000 to 7500000 ug/L) for 96 hr /total.

LC50; Species: Chironomus tentans (Midge, size 10.43 mm, 3rd instar); Conditions: freshwater; static; Concentration: 6830000 ug/L (95% confidence limit: 6380000 to 7310000 ug/L) for 96 hr /total.

EC50; Species: Daphnia magna (Water flea); Conditions: freshwater; static; Concentration: 15.12 mM for 24 hr; Effect: intoxication, immobile /total.

LC50; Species: Daphnia magna (Water flea); Conditions: freshwater; static; Concentration: 29 mg/L for 96 hr /total.

LC50; Species: Daphnia magna (Water flea); Conditions: freshwater; static; Concentration: 117 mg/L for 72 hr /total/

EC50; Species: Daphnia magna (Water flea); Conditions: freshwater; /conditions of bioassay not specified/; Concentration: 7350 umol/L for 24 hr; Effect: intoxication, immobile /total.

EC50; Species: Daphnia magna (Water flea); Conditions: freshwater; static; Concentration: 141460 ug/L (95% confidence limit: 95300 to 170700 ug/L) for 48 hr; Effect: intoxication, immobile /total.

EC50; Species: Daphnia magna (Water flea); Conditions: freshwater; static; Concentration: 327940 ug/L (95% confidence limit: 248600 to 407200 ug/L) for 24 hr; Effect: intoxication, immobile /total.

LC50; Species: Daphnia magna (Water flea, 4th instar or adult); Conditions: freshwater; static; Concentration: 343000 ug/L for 24 hr /total.

LC50; Species: Daphnia magna (Water flea, 4th instar or adult); Conditions: freshwater; static; Concentration: 357000 ug/L for 48 hr /total.

LC50; Species: Daphnia magna (Water flea, < 24 hr); Conditions: freshwater; static; Concentration: 660000 ug/L (95% confidence limit: 440000 to 880000 ug/L) for 48 hr /total.

LC50; Species: Daphnia magna (Water flea, < 24); Conditions: freshwater; static; Concentration: 740000 ug/L (95% confidence limit: 580000 to 880000 ug/L) for 24 hr /total.

LC50; Species: Hyalella azteca (Scud); Conditions: freshwater; flow-through; Concentration: 0.41 g/L (95% confidence limit: 0.35 to 0.49 g/L) for 96 hr /total.

12. ECOLOGICAL INFORMATION: continued

Aquatic Toxicity (continued)

LC50; Species: *Hyalella azteca* (Scud); Conditions: freshwater; flow-through; Concentration: 0.54 g/L for 48 hr /total.

LC50; Species: *Hyalella azteca* (Scud, size 1.85 mm); Conditions: freshwater; flow-through; Concentration: 0.54 g/L (95% confidence limit: 0.47 to 0.61 g/L) for 96 hr /total.

LC50; Species: *Hyalella azteca* (Scud); Conditions: freshwater; flow-through; Concentration: 0.63 g/L for 72 hr /total.

LC50; Species: *Hyalella azteca* (Scud); Conditions: freshwater; renewal; Concentration: 134000 ug/L for 96 hr /formulated product

LC50; Species: *Hyalella azteca* (Scud); Conditions: freshwater; static; Concentration: 141900 ug/L (95% confidence limit: 100700 to 199800 ug/L) for 96 hr /total.

LC50; Species: *Gambusia affinis* (Western mosquitofish, female); Conditions: freshwater; static; Concentration: 435000 ug/L for 96 hr /total.

LC50; Species: *Gambusia affinis* (Western mosquitofish, female); Conditions: freshwater; static; Concentration: 1990000 ug/L for 48 hr /total.

LC50; Species: *Gambusia affinis* (Western mosquitofish, female); Conditions: freshwater; static; Concentration: 4700000 ug/L for 24 hr /total.

LC50; Species: *Lepomis macrochirus* (Bluegill, size 5.3-7.2 cm, wt 3.5-3.9 g); Conditions: freshwater; static; Concentration: 2010000 ug/L for 96 hr; Effect: mortality, survival /total.

LC50; Species: *Oncorhynchus mykiss* (Rainbow trout, donaldson trout, size 5.0-6.0 cm); Conditions: freshwater; static; Concentration: 1191000 ug/L (95% confidence limit: 923000 to 1536000 ug/L) for 24 hr /99% total.

LC50; Species: *Oncorhynchus mykiss* (Rainbow trout, donaldson trout, wt 0.8-1.2 g); Conditions: freshwater; static; Concentration: 1610000 ug/L (95% confidence limit: 1223000 to 2119000 ug/L) for 48 hr /total.

LC50; Species: *Pimephales promelas* (Fathead minnow); Conditions: freshwater; static; Concentration: 880000 ug/L (95% confidence limit: 750000 to 1020000 ug/L) for 96 hr /total.

LC50; Species: *Pimephales promelas* (Fathead minnow); Conditions: freshwater; static; Concentration: 910000 ug/L (95% confidence limit: 750000 to 1090000 ug/L) for 48 hr /total.

LC50; Species: *Pimephales promelas* (Fathead minnow); Conditions: freshwater; static; Concentration: 950000 ug/L (95% confidence limit: 750000 to 1090000 ug/L) for 24 hr /total.

LC50; Species: *Pimephales promelas* (Fathead minnow, size 1.5-2.5 cm); Conditions: freshwater; static; Concentration: 2465000 ug/L (95% confidence limit: 2133000 to 2850000 ug/L) for 24 hr /99% total.

Persistence/Biodegradability Not determined for product.

Bioaccumulation Not determined for product.

Mobility in Soil Not determined for product.

Notes:

1. LC50: Concentration in water that produces 50% mortality in fish.

2. 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

ADR/ADG/ 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

US TSCA Status	Exempt. However, potassium chloride is listed on the TSCA inventory.
US CERCLA Status	Not listed
US SARA 302 Status	Not listed
US SARA 313 Status	Not listed
US RCRA Status	Not listed
US PROP 65 (Calif.)	Not listed

Notes: TSCA, Toxic Substance Control Act; CERCLA, US EPA law, Comprehensive Environmental Response, Compensation, and Liability Act; SARA, Superfund Amendments and Reauthorization Act; RCRA, US EPA, Resource Conservation and Recovery Act; Prop 65, California Proposition 65

<u>GHS/CLP Classification*</u>	*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.
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Hazard Class	Hazard Category	Pictogram	Signal Word	Hazard Statement
NA	NA	NA	NA	NA
Prevention	Do not breathe vapor or spray Wear eye protection/face protection Wash hands thoroughly after handling			
Response	Get medical attention if you feel unwell. 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.			

15. REGULATORY INFORMATION: continued

<u>EU Classification*</u>	*Medicinal products are exempt from the requirements of the EU Dangerous Preparations Directive.
Classification(s)	NA
Symbol	NA
Indication of Danger	NA
Risk Phrases	NA
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
LD ₅₀	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
STOT - SE	Specific Target Organ Toxicity – Single Exposure
STOT - RE	Specific Target Organ Toxicity – Repeated Exposure
TSCA	Toxic Substance Control Act
TWA	8-hour Time Weighted Average

MSDS Coordinator: Hospira GEHS
Date Prepared: October 19, 2012
Date Revised: June 02, 2014

Disclaimer:

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(M)SDS Overview

Use the search box at the top right of the site to search for safety data sheets (SDS). To locate the SDS for a specific product, enter part of the product name, filter the search using the check boxes, then click on the magnifying glass.

US OSHA—HAZARD COMMUNICATION—CHANGE TO SAFETY DATA SHEETS

The Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29CFR1910.1200) requires manufacturers to prepare Safety Data Sheets for chemical products that are considered "hazardous" according to the regulation. For a chemical or formulation to be hazardous under OSHA's Hazard Communication Standard, it must present either a physical hazard or health hazard.

On June 1, 2015 OSHA's revised Hazard Communication Standard became effective. The Hazard Communication Standard now requires chemical manufacturers, distributors, or importers to provide new Safety Data Sheets, formerly known as Material Safety Data Sheets (MSDS), in a revised uniform format that includes standardized section numbers and headings.

All Hospira products which require a Safety Data Sheet under the regulation have been revised and updated to the new SDS format. For the purposes of hazard communication, the term MSDS and SDS are used interchangeably on our product catalog during this transition period.

PRODUCTS NOT REQUIRING SAFETY DATA SHEET

The list below identifies those Hospira products that do not meet OSHA's "hazardous" chemical classification. Safety data sheets have not been prepared for the products listed below.

4 Trace Elements Injection	Mannitol Injection
Acetic Acid Irrigation	Medical Devices
Aminosyn™ (An Amino Acid Injection)	Normosol™ Injection
Aminosyn™ in Dextrose Injection	Physiosol™ Irrigation
Ascorbic Acid Injection	Potassium Acetate Injection
Balanced Salt Solution	Potassium Chloride in Dextrose and Sodium Chloride Injection
Calcium Gluconate Injection	Potassium Chloride in Dextrose Injection
Cupric Chloride Injection	Potassium Chloride in Lactated
Dextran in Dextrose Injection	Potassium Chloride in Sodium Chloride Injection
Dextran in Sodium Chloride Injection	Potassium Chloride Injection
Dextrose and Lactated Ringer's Injection	Ringer's and Dextrose Injection
Dextrose and Ringer's Injection	Ringer's Injection
Dextrose and Sodium Chloride Injection	Ringer's Irrigation
Elliott's Solution A	Sodium Acetate Injection
Glycine Irrigation	Sodium Chloride Injection
Hetastarch in Sodium Chloride Injection	Sodium Chloride Irrigation
Hextend™ - 6% Hetastarch in Lactated Electrolyte Injection	Sodium Lactate Injection
Ionosol™ and Dextrose Injection	Sodium Phosphates Injection
Lactated Ringer's Injection	Sorbitol-Mannitol Irrigation
Lactated Ringer's Irrigation	Sterile Water for Injection
Liposyn™ (I.V. Fat Emulsion)	Sterile Water for Irrigation
LMD in Dextrose Injection	Theophylline in Dextrose Injection
LMD in Sodium Chloride Injection	Voluven 6% Hydroxyethyl Starch Solution
Manganese Chloride Injection	Zinc Chloride Injection

Disclaimer:

The information contained in these data sheets is based on the data available to Hospira as of the posting on this web site of this information, and is believed to be accurate based upon that data as of such time. This information is provided independently of any sale of the products, for purpose of hazard communication. It is not intended to constitute product performance information, and no express or implied warranty of any kind is made with respect to the product, underlying data or the information contained herein.

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