

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 1 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 1. Identification

- GHS product identifier** : Heparin Sodium Injection USP PFS  
**Other means of identification** : 5,000 USP units per 0.5mL and 5,000 USP units per 1mL  
**Product type** : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

- Product use** : Pharmaceuticals (For intended use only.).  
 Observe technical data sheet/instructions for use.  
 Specific Treatments: thrombosis.

- Area of application** : Professional applications.

- Supplier's details** : Meitheal Pharmaceuticals, Inc.  
 8700 W. Bryn Mawr, Suite 600S  
 Chicago, IL 60631

Telephone: 224-443-4617  
 www.meithealpharma.com

- e-mail address of person responsible for this SDS** : info@meithealpharma.com

- Emergency telephone number (with hours of operation)** : 844-824-8426 (Monday - Friday, 08:00 - 18:00 CST)

## Section 2. Hazards identification

- OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

- Classification of the substance or mixture** : H319 EYE IRRITATION - Category 2A  
 H317 SKIN SENSITIZATION - Category 1  
 H350 CARCINOGENICITY - Category 1B  
 H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

- Hazard pictograms** :



- Signal word** : Danger

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 2 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 2. Hazards identification

**Hazard statements** : H317 - May cause an allergic skin reaction.  
H319 - Causes serious eye irritation.  
H350 - May cause cancer.  
H373 - May cause damage to organs through prolonged or repeated exposure. (heart, stomach)

**Precautionary statements**

**Prevention** : P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P280 - Wear protective gloves, protective clothing and eye or face protection.  
P260 - Do not breathe vapor.  
P264 - Wash thoroughly after handling.  
P272 - Contaminated work clothing must not be allowed out of the workplace.

**Response** : P308 + P313 - IF exposed or concerned: Get medical advice or attention.  
P302 + P352 - IF ON SKIN: Wash with plenty of water.  
P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.  
P363 - Wash contaminated clothing before reuse.  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 - If eye irritation persists: Get medical advice or attention.

**Storage** : P405 - Store locked up.

**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture  
**Other means of identification** : 5,000 USP units per 0.5mL and 5,000 USP units per 1mL

Ingredient name	Other names	%	Identifiers
Water	-	≥90	CAS: 7732-18-5
Heparin, sodium salt	-	≤10	CAS: 9041-08-1
α-chlorotoluene	-	≤2.5	CAS: 100-44-7
sodium chloride	Sodium chloride	<1	CAS: 7647-14-5
Hydrochloric acid	-	≤0.1	CAS: 7647-01-0
sodium hydroxide	-	≤0.1	CAS: 1310-73-2

Benzyl chloride and Sodium chloride are not within the 5,000 USP units per 0.5mL concentration.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 3 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 4 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 4. First aid measures

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : Do not use water jet.

### Specific hazards arising from the chemical

- Hazardous thermal decomposition products** : In a fire or if heated, a pressure increase will occur and the container may burst.  
: Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
sulfur oxides  
halogenated compounds  
carbonyl halides  
sodium oxides  
Chlorine

### Special protective actions for fire-fighters

### Special protective equipment for fire-fighters

- : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 5 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e. g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 6 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 7. Handling and storage

**Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

[Control parameters](#)  
[Occupational exposure limits](#)

Ingredient name	Exposure limits
Water	None.
Heparin, sodium salt	None.
$\alpha$ -chlorotoluene	<b>ACGIH TLV (United States, 1/2024) A3.</b> TWA 8 hours: 1 ppm. TWA 8 hours: 5.2 mg/m <sup>3</sup> . <b>NIOSH REL (United States, 10/2020)</b> CEIL 15 minutes: 1 ppm. CEIL 15 minutes: 5 mg/m <sup>3</sup> . <b>OSHA PEL (United States, 5/2018)</b> TWA 8 hours: 1 ppm. TWA 8 hours: 5 mg/m <sup>3</sup> . <b>CAL OSHA PEL (United States, 5/2018)</b> TWA 8 hours: 0.16 mg/m <sup>3</sup> . TWA 8 hours: 0.03 ppm.
sodium chloride	None.
Hydrochloric acid	<b>ACGIH TLV (United States, 1/2024) A4.</b> C: 2 ppm. <b>NIOSH REL (United States, 10/2020)</b> CEIL: 5 ppm. CEIL: 7 mg/m <sup>3</sup> . <b>OSHA PEL (United States, 5/2018)</b> CEIL: 5 ppm. CEIL: 7 mg/m <sup>3</sup> . <b>CAL OSHA PEL (United States, 5/2018)</b> C: 2 ppm. TWA 8 hours: 0.45 mg/m <sup>3</sup> . TWA 8 hours: 0.3 ppm.
sodium hydroxide	<b>ACGIH TLV (United States, 1/2024)</b> C: 2 mg/m <sup>3</sup> . <b>NIOSH REL (United States, 10/2020)</b> CEIL: 2 mg/m <sup>3</sup> . <b>OSHA PEL (United States, 5/2018)</b> TWA 8 hours: 2 mg/m <sup>3</sup> . <b>CAL OSHA PEL (United States, 5/2018)</b>

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 7 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

<b>Section 8. Exposure controls/personal protection</b>	
	C: 2 mg/m <sup>3</sup> .

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
  - Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
  - Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
  - Skin protection**
    - Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
    - Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
    - Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
    - Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 8 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### Appearance

- Physical state** : Liquid. [Clear.]
- Color** : Colorless to pale yellow.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : 5.5 to 7.5
- Melting point** : Not available.
- Boiling point or initial boiling point and boiling range** : Not available.
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability** : Not available.
- Lower and upper explosion limit/flammability limit** : Not available.
- Vapor pressure** :

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Water	17.5	2.3		92.258	12.3	

- Relative vapor density** : Not available.
- Relative density** : Not available.
- Density** : Not available.
- Solubility(ies)** :

Media	Result
water	Soluble

- Miscible with water** : Yes.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C (104°F)): Not available.
- Flow time (ISO 2431)** : Not available.

### Particle characteristics

- Median particle size** : Not applicable.

### Other information

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 9 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 9. Physical and chemical properties

**Physical/chemical properties comments** : No additional information.

## Section 10. Stability and reactivity

**Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability** : The product is stable.

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
Under normal conditions of storage and use, hazardous polymerization will not occur.

**Conditions to avoid** : Extremes of temperature and direct sunlight.

**Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis.

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
α-chlorotoluene	LD50 Oral	Rat	1231 mg/kg	-
sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
sodium chloride	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Hydrochloric acid	Eyes - Mild irritant	Rabbit	-	0.5 minutes 5 mg	-
sodium hydroxide	Eyes - Mild irritant	Rabbit	-	400 ug	-
	Eyes - Severe irritant	Rabbit	-	1 %	-
	Eyes - Severe irritant	Rabbit	-	0.5 minutes 1 mg	-

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 10 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 11. Toxicological information

	Eyes - Severe irritant	Rabbit	-	24 hours 50 ug	-
	Skin - Severe irritant	Rabbit	-	24 hours 500 mg	-

### Sensitization

Not available.

### Mutagenicity

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Classification

Product/ingredient name	OSHA	IARC	NTP
α-chlorotoluene	-	2A	-
Hydrochloric acid	-	3	-

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
α-chlorotoluene	Category 3	-	Respiratory tract irritation
Hydrochloric acid	Category 3 Category 3	-	Narcotic effects Respiratory tract irritation
sodium hydroxide	Category 3	-	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
α-chlorotoluene	Category 2	oral	heart, stomach

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : Causes serious eye irritation.

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 11 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 11. Toxicological information

- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Potential chronic health effects

- General** : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Heparin Sodium Injection USP PFS	117066.0	N/A	N/A	47.5	N/A
α-chlorotoluene	1231	N/A	N/A	0.5	N/A
sodium chloride	3000	N/A	N/A	N/A	N/A

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 12 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 11. Toxicological information

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
α-chlorotoluene	Acute LC50 4.4 mg/l Marine water	Crustaceans - <i>Penaeus setiferus</i> - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
sodium chloride	Acute LC50 4000 µg/l Fresh water	Fish - <i>Danio rerio</i>	96 hours
	Acute NOEC 2.5 mg/l Fresh water	Daphnia	48 hours
Hydrochloric acid	Acute EC50 4.74 g/L Fresh water	Algae - <i>Chlamydomonas reinhardtii</i>	96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - <i>Cypris subglobosa</i>	48 hours
	Acute EC50 402.6 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - <i>Lemna minor</i>	96 hours
	Acute LC50 1000 mg/l Fresh water	Fish - <i>Morone saxatilis</i> - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - <i>Hyalella azteca</i> - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - <i>Lemna minor</i>	96 hours
sodium hydroxide	Chronic NOEC 0.314 g/L Fresh water	Daphnia - <i>Daphnia pulex</i>	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - <i>Gambusia holbrooki</i> - Adult	8 weeks
sodium hydroxide	Acute LC50 240 mg/l Marine water	Crustaceans - <i>Carcinus maenas</i> - Adult	48 hours
	Acute LC50 282 ppm Fresh water	Fish - <i>Gambusia affinis</i> - Adult	96 hours
	Acute EC50 40.38 mg/l Fresh water	Crustaceans - <i>Ceriodaphnia dubia</i> - Neonate	48 hours
	Acute LC50 125 ppm Fresh water	Fish - <i>Gambusia affinis</i> - Adult	96 hours

**Conclusion/Summary** : Avoid release to the environment.

### Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
α-chlorotoluene	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Water	-1.38	-	Low
α-chlorotoluene	2.3	-	Low

### Mobility in soil

**Soil/Water partition coefficient** : Not available.



<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 13 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 12. Ecological information

**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### RCRA Acute hazardous waste "P" List

<b>Ingredient</b>	<b>CAS #</b>	<b>Status</b>	<b>Reference number</b>
Benzyl chloride	100-44-7	Listed	P028

## Section 14. Transport information

	<b>DOT Classification</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-
<b>Transport hazard class(es)</b>	-	-	-
<b>Packing group</b>	-	-	-
<b>Environmental hazards</b>	No.	No.	No.

### Additional information

**DOT Classification** : **Reportable quantity** 9182.7 lbs / 4169 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 14 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 14. Transport information

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : TSCA 8(a) PAIR:  $\alpha$ -chlorotoluene  
TSCA 8(a) CDR Exempt/Partial exemption: Not determined  
United States inventory (TSCA 8b) All components are active or exempted.  
Clean Water Act (CWA) 311:  $\alpha$ -chlorotoluene; Hydrochloric acid; sodium hydroxide

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**SARA 302/304**

**Composition/information on ingredients**

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
$\alpha$ -chlorotoluene	≤2.5	Yes.	500	54.4	100	10.9
Hydrochloric acid	≤0.1	Yes.	500	-	5000	-

**SARA 304 RQ** : 9182.7 lbs / 4169 kg

**SARA 311/312**

**Classification** : EYE IRRITATION - Category 2A  
SKIN SENSITIZATION - Category 1  
CARCINOGENICITY - Category 1B  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

**Composition/information on ingredients**

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 15 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 15. Regulatory information

Name	%	Classification
α-chlorotoluene	≤2.5	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 2 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 1B SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 HNOC - Static accumulating flammable liquid
sodium chloride Hydrochloric acid	<1 ≤0.1	EYE IRRITATION - Category 2A CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 HNOC - Corrosive to digestive tract
sodium hydroxide	≤0.1	CORROSIVE TO METALS - Category 1 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 HNOC - Corrosive to digestive tract [severe]

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	α-chlorotoluene	100-44-7	≤2.5
<b>Supplier notification</b>	α-chlorotoluene	100-44-7	≤2.5

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

- Massachusetts** : The following components are listed: BENZYL CHLORIDE
- New York** : The following components are listed: Benzyl chloride
- New Jersey** : The following components are listed: BENZYL CHLORIDE
- Pennsylvania** : The following components are listed: BENZENE, (CHLOROMETHYL)-
- California Prop. 65**

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 16 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 15. Regulatory information

**⚠ WARNING:** This product can expose you to Benzyl chloride, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Ingredient name	No significant risk level	Maximum acceptable dosage level
Benzyl chloride	Yes.	-

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		0
Physical hazards		0

**Caution:** HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

### National Fire Protection Association (U.S.A.)



### Procedure used to derive the classification

<b>SDS Title:</b> Heparin Sodium Injection USP PFS Safety Data Sheet	<b>SDS Number:</b> SDS-000079	<b>Page Number:</b> Page 17 of 17
<b>Function:</b> Regulatory Affairs	<b>Effective Date:</b> March 10, 2025	<b>Version number:</b> 2.0

## Section 16. Other information

Classification	Justification
EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1 CARCINOGENICITY - Category 1B SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method Calculation method Calculation method Calculation method

### History

- Date of issue/Date of revision** : 03/10/2025
- Date of previous issue** : 04/21/2023
- Version** : 2.0
- Prepared by** : Sphera Solutions
- Key to abbreviations** :
  - ATE = Acute Toxicity Estimate
  - AMP = Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
  - BCF = Bioconcentration Factor
  - GHS = Globally Harmonized System of Classification and Labelling of Chemicals
  - IATA = International Air Transport Association
  - IBC = Intermediate Bulk Container
  - IMDG = International Maritime Dangerous Goods
  - LogPow = logarithm of the octanol/water partition coefficient
  - MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
  - N/A = Not available
  - UN = United Nations

- References** : HCS (U.S.A.)- Hazard Communication Standard  
International transport regulations

Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.