MEDISCA® NETWORK INC.
TECHNICAL SUPPORT SERVICES
FORMULATION CHEMISTRY DEPARTMENT
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Suggested Formula	Heparin Sodium 5000 Units/mL Injection (Solution, 10 mL)	FIN	F 001 515v3

SUGGESTED FORMULATION

Ingredient Listing	Qty.	Unit	NDC #	Supplier	Lot Number	Expiry Date
Heparin Sodium 10,000 Units/mL Stock Solution †	5.00	mL				
Sodium Chloride, USP	0.056	g				
Benzyl Alcohol (Parenteral Application), NF	0.2	mL				
Sterile Water for Injection, USP	q.s. to 10.0	mL				
† **Heparin Sodium 10,000 Units/mL Stock Solution**						
Heparin Sodium (Powder) (1 MU), USP	1	Vial				
Sterile Water for Injection, USP	100.0	mL				

SPECIAL PREPARATORY CONSIDERATIONS

Ingredient-Specific Information

Light Sensitive *(protect from light whenever possible):* *Benzyl Alcohol*

Hygroscopic *(protect from moisture whenever possible):* *Heparin Sodium*

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SPECIAL PREPARATORY CONSIDERATIONS (CONTINUED)

Suggested Preparatory Guidelines

☐ Non-Sterile Preparation ■ Sterile Preparation

Processing Error / Testing Considerations: To account for processing error, sterility and endotoxin testing considerations during preparation, it is suggested to measure an additional **20 to 25%** of the required quantities of ingredients.

Special Instruction: This formula may contain one or more Active Pharmaceutical Ingredients (APIs) that may be classified as hazardous, please refer & verify the current NIOSH list of Antineoplastic and Other Hazardous Drugs in Healthcare Settings. At this time, **General Chapter <800> Hazardous Drugs – Handling in Healthcare Settings** is informational and not compendially applicable unless otherwise specified by regulators and enforcement bodies. For information on the scope, intended applicability, and implementation context for USP General Chapter <800>, see: https://www.usp.org/compounding/general-chapter-hazardous-drugs-handling-healthcare.

This formula must be prepared within the appropriate facilities under adequate environmental conditions, following the necessary guidelines and procedures as stated within *USP 797* and *USP 800*, when handling hazardous drugs. Only trained and qualified personnel must prepare this formula.

All heat stable, reusable materials and equipment must be sterilized and depyrogenated by dry heat sterilization at 250°C for 2 hours prior to use.

Compounder needs to verify as per USP, if every batch of final product compounded using this procedure must be sterility and endotoxin tested before being dispensed.

All required personal protective equipment (sterile and hazardous if applicable), such as but not limited to, gowns, aprons, sleeves, gloves both inner and outer if applicable, shoe covers, hairnet, head cap, beard cover, eyewear, appropriate face mask, respirator and face shield, etc., where applicable must be worn at all times. In addition, proper personnel cleansing must be done before entering the buffer or clean area.

If applicable, follow all required procedures for hazardous drug handling including but not limited to procurement, transport, storage, preparation, dispensing, administration, clean up (spills) & disposal.

Filter integrity must be validated by performing a filter stress test. If the test demonstrates that the filter might be defective, the solution must be discarded and remade.

If you are a registered 503B facility, please refer to all relevant guidance documents including but not limited to the Code of Federal Regulations (CFR), Guidance for Industry (GFIs) and Compliance Policy Guides (CPGs).

This procedure requires the use of very small quantities of ingredients. All calculations and preparation techniques must be verified before dispensing the final product.

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SUGGESTED PREPARATION (for 10 mL)

Weigh and / or measure the following ingredients when appropriate:

Ingredient Listing	Qty.	Unit	Multiplication factor (*): ____	Processing Error	Qty. to measure
Heparin Sodium 10,000 Units/mL Stock Solution † §	5.00	mL			
Sodium Chloride, USP §	0.056	g			
Benzyl Alcohol (Parenteral Application), NF §	0.2	mL			
Sterile Water for Injection, USP §	q.s. to 10.0	mL			
† **Heparin Sodium 10,000 Units/mL Stock Solution**					
Heparin Sodium (Powder) (1 MU), USP §	1	Vial	---	---	
Sterile Water for Injection, USP §	100.0	mL	---	---	

* Takes into account increased batch size conversions and density conversions, if required.
§ Weigh / measure just prior to use.

Preparatory Instruction **IMPORTANT: All preparatory procedures must be performed using proper Aseptic Technique**	
1.	**Equipment sterilization:** Following the manufacturer's specifications, sterilize and depyrogenate all heat stable, reusable materials and equipment, then return to ambient temperature.
2.	† **Heparin Sodium 10,000 Units/mL Stock Solution preparation:** A. Add the Sterile Water for Injection (100.0 mL) into the Heparin Sodium (Powder) (1 MU) (1 vial). Specification: Continuously mix until all solid particles have completely dissolved. End result: Homogeneous liquid-like solution.
3.	**Liquid preparation:** A. Combine and mix the following ingredients together until homogeneously dispersed: -Heparin Sodium 10,000 Units/mL Stock Solution (5.00 mL plus processing error adjustments) -Benzyl Alcohol (Parenteral Application) End result: Homogeneous liquid-like solution.

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4.	**Powder to medium integration:** A. Incrementally add the Sodium Chloride into the homogeneous liquid-like solution (Step 3A). Specifications: Continuously mix until all solid particles have completely dissolved. End result: Homogeneous liquid-like solution.
5.	**Filling to volume and transfer into dispensing container:** A. Add Sterile Water for Injection to the mixture (Step 4A) to fill to the required batch size (10.0 mL *plus* processing error adjustments). Specifications: Continuously mix. End result: Homogeneous liquid-like solution. B. Transfer the final product (Step 5A) into the recommended dispensing containers (see Packaging requirements). Transfer the remainder into a separate dispensing container. This is to be used as the Test sample for sterility and endotoxins testing.
6.	**Terminal Sterilization:** In relation to the chemical composition of the formulation, final packaging, etc., select and validate an end-stage sterilization method and follow the manufacturer's specification.
7.	**Sterility and Endotoxin testing:** Validate the Test sample for sterility and endotoxins, in accordance to current USP 797 regulatory guidelines.

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SUGGESTED PRESENTATION

Estimated Beyond-Use Date		24 hours controlled room temperature, 3 days refrigerated, or 45 days frozen, as per USP 797. BUD based on successful endotoxin test result.	Packaging Requirements		Sterile, light-resistant injection vials.
Auxiliary Labels	1	Keep at controlled room temperature, (20°C – 25°C), refrigerated (2°C – 8°C) or frozen (-25°C to -10°C).	6		Consult your health care practitioner if any other prescription or over-the-counter medications are currently being used or are prescribed for future use.
	2	Keep out of reach of children.	7		Equilibrate to room temperature before use.
	3	Discard in the presence of particulate matter.	8		Protect from light.
	4	Do not use if discolored.	9		Use as directed. Do not exceed prescribed dose.
	5	Discard container after use.			
Pharmacist Instructions		Add any auxiliary labels specific to the API to the dispensing container as deemed necessary. **Important: To be administered only by the prescribing physician.**			
Patient Instructions		Contact your pharmacist in the event of adverse reactions.			

REFERENCES

1. Heparin Sodium. In: Sweetman SC, ed. *Martindale: The Complete Drug Reference, 34th Edition.* London, England: The Pharmaceutical Press; 2005: 928.
2. Heparin (Monograph). In: O'Neil MJ. *The Merck Index 13th Edition.* Whitehouse Station, NJ: Merck & Co, Inc.; 2001: 830.
3. Heparin Sodium (Monograph). US Pharmacopeial Convention, Inc. *United States Pharmacopeia XXV / National Formulary 20.* Rockville, MD: US Pharmacopeial Convention, Inc; 2001: 836.
4. Heparin Sodium. US Pharmacopeial Convention, Inc. *USP DI – Drug Information for the Health Care Professional, 26th Edition.* Taunton, MA: US Pharmacopeial Convention, Inc; 2006: 1626.
5. USP <797> Pharmaceutical Compounding – Sterile Preparations. US Pharmacopeial Convention, Inc. *United States Pharmacopeia XXVIII / National Formulary 23.* Rockville, MD. 2004: 2461.