INSTECH

INSTRUCTIONS FOR USE (IFU)

BLOOD SAMPLING AND CATHETER MAINTENANCE KITS

PRODUCT PART NUMBERS AND SPECIFICATIONS

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For lab animal research use only.
Not intended for human use.

Description and Intended Use

These Instech Blood Sampling and Catheter Maintenance Kits contain pharmaceutical-grade preservative-free sterile grade solutions that are prefilled into syringes for use with central vascular access devices, e.g., PinPorts™ or VABs™ in pre-clinical research settings in one convenient kit. These kits are customizable to meet your study's needs with specific volumes, formulations, concentrations and quantity of syringes to assist with blood sampling, infusion and even both. Generally, these kits contain three syringes:

- First, a syringe with sterile saline for drawing out the lock solution.
- Second, an empty sterile syringe to take the blood sample.
- Third, a syringe with USP sterile grade lock solution to lock the catheter.

How Supplied

Supplied clear and colorless. Each order quantity of one contains 50 kits. Each kit contains three sterile syringes in one convenient pack:

- Each saline syringe contains Normal Saline (0.9% NaCl) USP sterile grade and is prefilled into a sterile 1 mL BD syringe fitted with a sterile Instech PinPort™ injector and capped to preserve integrity. pH 4.5 - 7.0.
- Each empty 1 mL BD syringe is fitted with a sterile Instech PinPort™ injector and capped to preserve integrity.
- Each heparinized saline syringe is prefilled into a sterile 1 mL HSW Norm-Ject two-part syringe fitted with a sterile Instech PinPort™ injector (PNP3M) and capped to preserve integrity. Heparinized saline is normal saline (0.9% NaCl) USP sterile grade combined with heparin sodium USP in the unit/mL concentration as indicated on the label. May be used as a flush to clear the catheter or lock to occupy the dead space within the catheter inhibiting intraluminal blood clot formation. pH of 5.0 - 7.5.
- Each Heparin in 50% glycerol syringe is pre-filled into a sterile 1 mL HSW Norm-Ject two-part syringe fitted with a sterile Instech PinPort™ injector (PNP3M). The concentration of heparin sodium USP is listed in unit/mL as denoted on the product label. pH of 5.0 - 7.5.

All materials are USP (United States Pharmacopeia) grade with lot traceability and solution filtered for sterility with care in the United States at Instech's ISO certified Class 100 environment. The active pharmaceutical ingredient Heparin Sodium USP (CAS number 9041-08-1) in Instech Prefilled Syringes is sourced from USA/Canada porcine and manufactured in the United States.

Pre-installed sterile PinPort™ injectors on syringes are ready-to-use with PinPorts™ and VABs™ adding convenience and can improve study outcomes by reducing contamination risk associated with handling. Three syringes are packaged per labeled pouch. Fifty pouches per order quantity of one.

Precautions

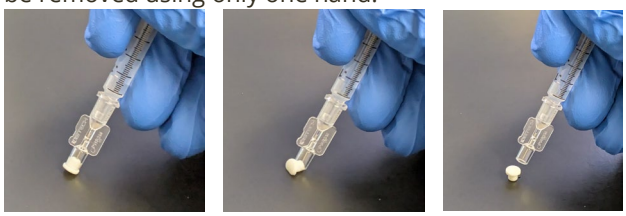
- Prior to infusing compounds or withdrawing blood, the lock solution must be withdrawn from the catheter.
- Know and understand the dead volume of the catheter and access device you intend to flush and lock. Catheter lock solutions contain high concentrations of anticoagulant heparin sodium. If administering a volume that is significantly greater than the dead volume of the catheter, injuries i.e., internal hemorrhage, may occur to the animal.
- However, when working with viscous lock solution, i.e., dextrose or glycerol, due to laminar flow it generally requires 1.7x the dead volume to fully fill the catheter and replace the prior volume.[1] Therefore, some portion of this will be infused into your animals; check with your veterinary staff for what is safe for your animals and will not compromise your research.
- Discard if the solution is not clear or suspected to be contaminated.

Usage

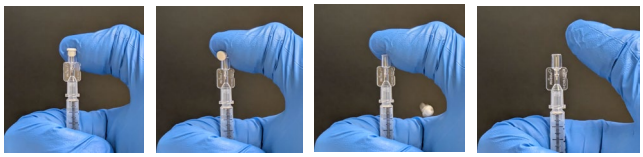
To prevent contamination, aseptic technique in a clean environment is recommended when handling the implanted central venous catheter device (accessed via

PinPort™ or VAB™), sterile syringes, and flush & lock solutions. Follow vascular device instructions. Instech product manuals available at https://www.instechlabs.com/resources/manuals.

The USP Class VI medical grade silicone cap is designed to be removed using only one hand.

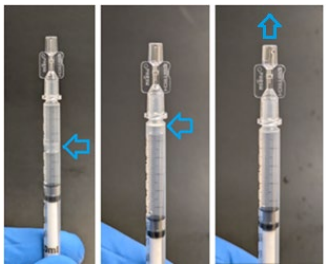


Option 1: Drag the white cap across clean surface.



Option 2: Drag thumb across the cap.

After removing the white silicone cap, discard cap. Inspect syringes for air bubbles prior to injecting solution into the catheter device. If air bubbles are observed, remove air by tapping the syringe barrel then press the plunger handle until air is expelled.



Resources

For additional assistance with using Instech catheter Flush and Lock Solutions, please consider these additional resources:

Instech Education Program
Online or In-Person Training
https://www.instechlabs.com/education

Video
Sterile Solutions and Catheter Maintenance, Jan. 2025.
https://www.youtube.com/watch?v=JPBJz8egAqk

Instech FAQ
What solution should I use to lock my catheter?
https://www.instechlabs.com/vascular-catheterization-frequently-asked-questions

Your specific blood sampling and/or infusion procedures may differ therefore the following instructions should be considered guidance should you need assistance.

Prior to accessing vascular access device (PinPort™ or VAB™), clean and disconnect the surface of the using a sterile wipe saturated with 70% isopropyl alcohol or sterile 70% denatured ethanol (EtOH). Allow to dry.

1. **Aspirate:** Attach BD Syringe with PinPort™ injector containing Normal Saline, USP Sterile Grade to PinPort™ or VAB™. Slowly aspirate (withdraw) the lock solution from catheter. If patency (flow) is not observed upon initial draw, push-pull method may be required to re-establish patency. Gently push a small amount of normal saline into the catheter. Caution should be exercised when using this method, especially when high concentration heparin lock solutions, e.g., 500 units/mL are used. Introducing excessive amounts of heparin into the animal bloodstream may cause injuries i.e., internal hemorrhage, may occur to the animal. When patency is established, withdraw sample until whole blood is observed at tip of syringe. Remove syringe with PinPort™ injector from PinPort™ or VAB™ and discard.
2. **Collect Blood Sample (if applicable):** Attach empty sterile syringe with PinPort™ injector to PinPort™ or VAB™. Aspirate (withdraw) blood from catheter until the desired volume of whole blood sample is collected the PinPort™ or VAB™. Disconnect syringe and PinPort™ injector from Pinport™ or VAB™.
3. **Infuse (if applicable):** Attach syringe filled with compound and fitted with a PinPort™ injector to the PinPort™ or VAB™. Gently infuse the desired volume of compound into the catheter. Disconnect syringe and PinPort™ injector from PinPort™ or VAB™.
4. **Lock:** Connect syringe containing lock solution catheter lock solution to PinPort™ or VAB™. Note: Solutions with higher viscosity are recommended for arterial access. If using viscous lock solution, i.e., 50% glycerol or 50% dextrose, instill lock solution to 1.7x dead volume of catheter. Disconnect syringe from PinPort™ or VAB™.[1]

When finished locking the catheter, disinfect the surface of the PinPort™ or VAB™, using a wipe saturated with sterile 70% isopropyl alcohol or sterile 70% denatured ethanol (EtOH).

Observe for

- No resistance: There should be no resistance when flushing and aspirating.
- Brisk blood return: if the catheter is patent, you should see blood return that is the color and consistency of whole blood.
- Sluggish flow: Sluggish flow may indicate a partial occlusion.

- No blood return: If no blood returns, further investigation is required. Potential causes are mechanical occlusions, improper position of the catheter tip, thrombotic or chemical occlusion.

Considerations

- Pulsatile flushing: Some protocols recommend using the pulsatile flush or push-pause technique.
- Do not forcibly flush: Avoid forcing the flush, as this can damage the catheter or surrounding tissue, or disconnect the catheter from the connector.
- Check for kinks or obstructions: Ensure there are no kinks or obstructions in the catheter tube.
- Catheter position: The catheter tip could be against the vessel wall or obstructed. Moving the animal around or massaging its chest may help to withdraw blood if the catheter tip is against the wall of the blood vessel.
- Document findings: Document the patency assessment and any findings.

Storage

- Store at a controlled ambient temperature of 15-25°C (59-77°F) with relative humidity of 60% or lower.
- Avoid exposure to excessive heat: >40°C (104°F).
- Do not freeze.
- Avoid exposure to UV light.
- The syringes are intended for single use.
- **Expiration date is one (1) year** from date of manufacture. The expiration date is listed on the product label.
- Syringes that have had caps removed should be used immediately or discarded at the end of the clinic day.
- Improper storage and handling of solutions may decrease efficacy.
- Unused syringes should not be used after the expiration date.

Disposal

Instech Catheter Flush and Lock Solution Prefilled Syringes should always be disposed of properly following local waste management policies.

References

[1]Instech testing summarized in Sept 2022 blog post https://www.instechlabs.com/blog/what-does-laminar-flow-have-to-do-with-rodent-catheters

[2] VAB™ and Positive Pressure Technique Can Improve Patency of Rodent Catheters Instech Education https://www.instechlabs.com/positive-pressure-technique

For more information go to www.instechlabs.com/manuals or scan the code or call Instech Laboratories, Inc at 1-800-443-4227.

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