

## Sample Collection and Handling

Correct sample processing is the most important step in obtaining accurate results with your i-STAT® Portable Clinical Analyzer. **Most analytical errors are caused by improper sample collection and handling.**

**IMPORTANT:** 1. Venipuncture precautions must be followed for proper sample collection.  
2. Using the correct sample collection device is critical for valid i-STAT® Analyzer results.

### Venipuncture Precautions

The following precautions should be observed when collecting blood for use on the i-STAT® Analyzer:

- Use a 3-ml or larger syringe with a 22-gauge or larger needle. **Avoid tuberculin syringes.**
- Do not collect blood into any anticoagulant other than lithium heparin or balanced heparin.
- Do not use ammonium heparin or EDTA.
- Do not use anticoagulants of any type when performing the Celite® Activated Clotting Time test.
- Do not draw from an IV catheter.
- If using alcohol to clean the venipuncture site, allow the alcohol to dry completely.
- Avoid excessive probing for the vein or suction on the syringe. Thromboplastin from damaged tissues may be aspirated along with the sample, accelerating clotting. Prolonged or difficult venipuncture may also result in clot formation.
- Avoid bubbles or air spaces in the sample when measuring pH,  $PCO_2$ ,  $PO_2$  and ionized calcium.

### Sample Collection Devices

#### Heparinized Syringes

- **Commercially Available Pre-Heparinized Syringes**

3-ml pre-heparinized syringes are commercially available that are appropriate for use with the i-STAT® Analyzer. Heska Corporation recommends syringes designed for blood gas analysis, available from your laboratory materials supplier.

#### **GENERAL GUIDELINES**

- Lithium heparin or balanced heparin are the only anticoagulants recommended for use.
- When using a commercially available heparinized syringe, fill to the recommended volume listed on the package.
- After collection, roll the syringe vigorously between your palms for at least 5 seconds, then gently invert the syringe 8–10 times to thoroughly mix.
- Hold the syringe vertically and tap the sides to dislodge any bubbles or air spaces. Expel the air by pressing gently on the syringe plunger until a solid column of blood remains.
- Expel the first few drops of blood onto a paper towel then load the cartridge.
- For best results, sample should be run as quickly as possible. If a delay is expected, blood should be run within 10 minutes of collection, especially for blood gas and ionized calcium analysis.

- **In-Clinic Heparinized Syringes**

Heska Corporation does **not** recommend in-clinic preparation of heparinized syringes using bulk heparin. Due to the excessively high concentration of heparin in bulk solutions, it is difficult to avoid over-heparinization of samples. Excess heparin may cause errors in test results.

### **Heparinized Collection Tubes**

- **Commercially Heparinized Non-Vacuum Collection Tubes**

1.3-ml heparinized non-vacuum collection tubes (CAT #5021) are available from Heska Corporation for use with the i-STAT® Analyzer.

- **Commercially Heparinized Vacuum Collection Tubes**

3-ml green-topped vacuum collection tubes containing lithium heparin are available from your laboratory materials supplier.

#### **GENERAL GUIDELINES**

- To transfer blood from syringe into vacuum tube, remove the stopper from the tube and also remove the needle from the syringe. Fill the tube by dispensing blood from the syringe into the tube until it reaches the appropriate fill volume. This procedure prevents sample hemolysis.
- Immediately replace the stopper and mix the sample by gently inverting the tube 8–10 times.
- For best results, sample should be run as quickly as possible.
- To load, aspirate a volume of blood sufficient to fill the cartridge into either a syringe (without needle) or a transfer pipette.
- Expel any bubbles or air spaces in the sample.
- Expel the first few drops of blood onto a paper towel then load the cartridge.
- Collection tubes are not recommended for  $PO_2$  testing. To prevent  $O_2$  dissipation, the cartridge should be filled directly from the syringe used for collection.

### **Heparinized Capillary Tubes**

100-µl heparinized capillary tubes (CAT #5215) are available from Heska Corporation for use with the i-STAT® Analyzer.

#### **GENERAL GUIDELINES**

- Insert a 22-gauge or larger needle (*without syringe*) into the vein.
- When the hub of the needle fills with blood, place the end of the capillary tube into the blood and allow the tube to fill by capillary action.
- Immediately dispense the blood into the cartridge sample well using the supplied plunger.
- Capillary tubes are not recommended for ionized calcium testing.

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**For assistance, call Technical Support Services at 1-800-464-3752, opt 3.**

