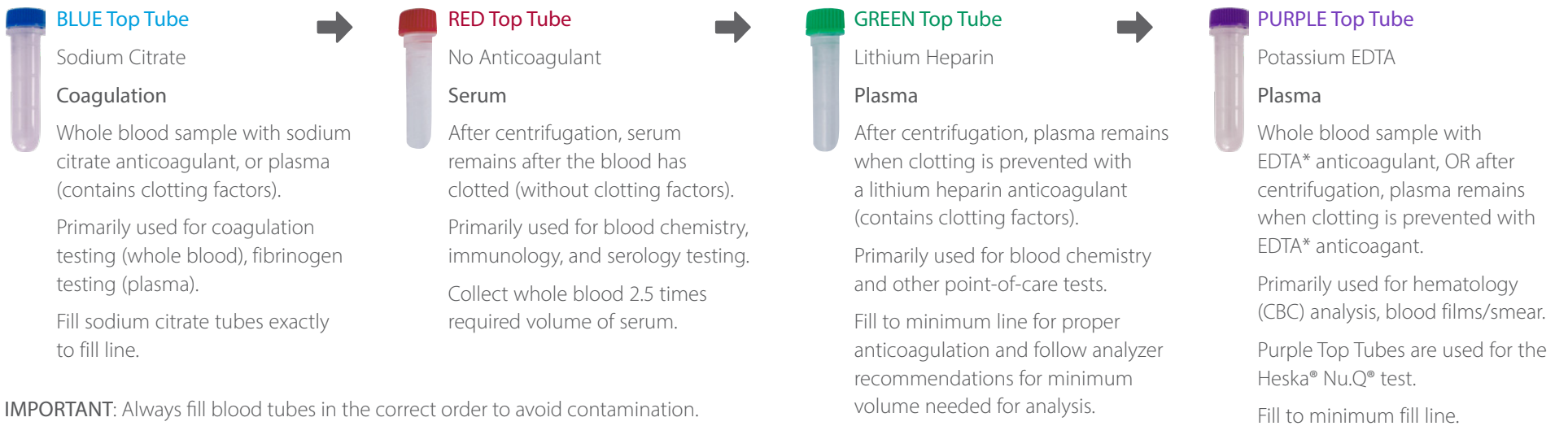


## Blood Sample Handling

### Collection Tubes and Fill Order

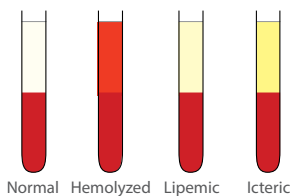


### HESKA DRI-CHEM® Tubes

**Non-heparinized Red Top Tubes (0.5 mL & 1.5 mL)**  
Serum or plasma is collected from other, non-Heska tubes or a Heska Green Top Tube and syringed into Red Top Tube. It is NOT recommended to use this tube for whole blood centrifugation.  
**NOTE:** Also used for Heska Electrolyte Reference Fluid and Heska Chemistry Control Solution.

**Lithium Heparin Green Top Tubes (0.5 mL & 1.5 mL)**  
Whole blood is collected from patient, syringed into tube, properly inverted, centrifuged and can then be placed directly into analyzer (no clotting or pipetting required).

### Sample Types



**Normal** plasma/serum samples are straw-colored, and do not have a yellow, red, or pink tinge.

**Hemolyzed** plasma/serum samples have a pink/red tinge due to broken blood cells.

**Lipemic** plasma/serum samples have a milky appearance due to a high concentration of fat in blood.

**Icteric** plasma/serum samples have a yellow color due to a disease or condition that causes excess bilirubin in blood.

### Best Practices

#### General

- Minimize micro-clot formation with swift/atraumatic venipuncture and by immediately transferring blood from syringe into collection tubes in recommended order (see above).
- Use a 22-gauge or larger needle for venipuncture to minimize hemolysis.
- Avoid repositioning and/or excessive suction on the syringe.
- Remove needle from syringe to fill tubes, unless using a closed vacuum/vacutainer blood collection system.
  - If using vacutainer, let blood sample flow naturally into tube (do not force).
- All blood collection tubes should be filled to recommended levels to avoid over-dilution of the sample with anticoagulant.
- Serum Separator Tubes (aka Tiger Top or Gold Top Tubes) can interfere with some drug or hormone assays on chemistry and immunodiagnostic platforms.

#### Chemistry

- Whole blood samples in Green Top Tubes must be inverted 5–10 times immediately after collection (prior to centrifugation).
- For serum samples, allow whole blood to clot at room temperature, prior to centrifugation (approx. 15–20 minutes for small animals, 30–45 minutes for equine/ruminants). Prior to centrifugation, visually inspect the sample to ensure there is a fully-formed solid clot.
  - If clot is not fully formed, wait an additional 5–10 minutes. If centrifugation occurs prior to full clot formation, there will be fibrin admixed in the serum, which can affect results.
- For both plasma and serum samples, best practice includes checking sample for fibrin. After centrifugation, remove any fibrin by gently swirling two clean wooden applicator sticks for a few seconds in the plasma/serum layer only.

#### Hematology

**NOTE:** Purple Top Tubes are available in a variety of sizes. The Element HT5® analyzer accepts samples from any size Purple Top Tube, if filled and handled appropriately. Follow manufacturer's recommendations to ensure proper ratio and mixing of EDTA to blood; generally this means filling the EDTA tube until it is at least 1/2 way full with blood.

- After adding blood sample, immediately invert Purple Top Tube 8–10 times to mix blood and EDTA anticoagulant.
- Allow sample to stabilize 1–2 minutes before analysis (recommended that blood tubes be placed on a mixing device for this interval), and re-invert just prior to use.
- Check sample for micro-clots and/or fibrin (small dark red or white translucent particles).
  - Immerse two wooden applicator sticks into the blood and swirl gently, remove sticks and examine.

**IMPORTANT:** If clots or fibrin are present, discard and obtain new sample.

#### Coagulation

- For the Element COAG+® Immunodiagnostic Analyzer, use fresh whole blood, or citrated whole blood (Blue Top Tube).
- For fresh whole blood, discard first drop before adding sample to test strip. Sample must be added to test strip within 30 seconds of blood draw.

#### Citrated Whole Blood Samples

- Fill Blue Top Tube exactly to the fill line and invert at least 10 times to mix thoroughly.
- Allow sample to sit at room temperature for at least one minute, and then follow steps for re-calcification.
- With 100 µL pipette, aspirate 100 µL of citrated blood sample.
- Pierce the foil lid on top of re-calcification tube with pipette tip containing sample and expel sample into the calcification tube. Mix well by pipetting 6–8 times.
- Place one drop of blood sample onto test strip for analysis.
- When using a Blue Top Tube, store sample at room temperature and test within 4 hrs.