



## Blood Specimen Collection Tubes

The accuracy of laboratory testing depends on the quality of the specimen submitted. Proper specimen collection, identification, and transport determine the accuracy and utility of the test results. Please consult the test catalog for information about collection and handling of specimens. If there are any questions, please call Billings Clinic Laboratory to clarify the specimen requirements.

### Blood Collection:

- **Serum:** Draw a sufficient amount of whole blood into a plain, red top tube or a serum gel tube. Gently invert the tube several times after collection to activate clotting. Allow blood to clot at ambient temperature for 20 to 30 minutes. Centrifuge for 10 minutes to separate the serum from clot and transfer the serum to a screw-capped, plastic vial labeled "Serum". This process should be completed within 1 hour of collecting the specimen for optimal results.  
**\*Note:** There are some tests that require serum, where serum gel tubes should not be used. These are identified in the test catalog. The gel in the tubes can interfere with certain testing methods/tests.
- **Plasma:** Draw a sufficient amount of whole blood into a tube containing the proper anticoagulant. Immediately invert the tube gently several times to mix. Centrifuge for 10 minutes to separate the plasma from the cells and transfer the plasma to a screw-capped, plastic vial labeled with anticoagulant type or "Plasma". This process should be completed within 30 minutes of collecting the specimen for optimal results. Examples of anticoagulant collection tubes include: Green Top (sodium or lithium heparin), Lavender Top (EDTA), and Light Blue Top (sodium citrate).
- **Whole Blood:** Draw a sufficient amount of whole blood into a tube containing the proper anticoagulant. Immediately invert the tube gently several times to mix. Leave specimen in original tube.

### Specimen Collection Tubes by Cap Color:

The following is a list of tubes referred to in the specimen requirements:

- **Lavender Top Tube with Black Ring (4mL tube):**
  - Contains K<sub>3</sub> EDTA with no gel separator
  - Used for the collection of most hematology studies and special testing
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
- **Lavender Top Tube with Black Ring (9mL tube):**
  - Contains K<sub>3</sub> EDTA with no gel separator
  - Used for the collection of Blood Bank specimens and special testing; is not suggested for hematology studies
  - Billings Clinic Laboratory ONLY accepts this tube for Blood Bank testing
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
- **Green Top Tube with No Ring:**
  - Contains Sodium Heparin with no gel separator
  - Used for the collection of heparinized plasma or whole blood for special testing
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation

## Specimen Collection Tubes by Color: (continued)

- **Green Top Tube with Black Ring:**
  - Contains Lithium Heparin with no gel separator
  - Also called “Green Top” or “Plain Green” in Test Catalog
  - Used for the collection of heparinized plasma or whole blood for chemistry studies and special testing
  - Do NOT store plasma on cells. Plasma must be removed from cells within 30 minutes after centrifugation for testing, shipping and storage
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
- **Green Top Tube with Yellow Ring:**
  - Contains Lithium Heparin with a gel separator
  - Also called “Green Gel” in Test Catalog
  - Used for the collection of heparinized plasma or whole blood for most chemistry studies and special testing
  - Do NOT freeze plasma on separator gel. Transfer plasma to a screw-capped, plastic vial before storing
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
- **Red Top Tube with Black Ring:**
  - Contains a clot activator with no gel separator
  - Also called “Red Top” or “Plain Red” in Test Catalog
  - Used for collection of serum for selected chemistry studies, immunohematology studies, and special testing
  - Do NOT store serum on cells. Serum must be removed from cells within 60 minutes after centrifugation for testing, shipping and storage
  - **Note:** Let tube clot for 20-30 minutes before centrifugation
- **Red Top Tube with Yellow Ring:**
  - Contains a clot activator with a gel separator
  - Also called “Red Gel” or “Serum Gel” in Test Catalog
  - Used for the collection of various laboratory tests and special testing
  - Do NOT freeze serum on separator gel. Transfer serum to a screw-capped, plastic vial before storing
  - **Note:** Let tube clot for 20-30 minutes before centrifugation
- **Light Blue Top Tube with Black Ring:**
  - Contains Sodium Citrate with no gel separator
  - Used for the collection of most coagulation studies
  - Collection volume is 3.15 mL of whole blood (fill to arrow on the tube)
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
- **Light Blue Top Tube with White Ring (Short Draw Tube):**
  - Contains Sodium Citrate with no gel separator
  - Used for the collection of most coagulation studies
  - Collection volume is 1.8 mL of whole blood (fill to arrow on the tube)
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
- **Grey Top Tube with White Ring:**
  - Contains Potassium Oxalate and Sodium Fluoride with no gel separator
  - Used for the collection of some special chemistry studies and special testing
  - Do NOT store plasma on cells. Plasma must be removed from cells within 30 minutes after centrifugation for testing, shipping and storage
  - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation

## Specimen Collection Tubes by Color: (continued)

- **White Top Tube with Black Ring:**
  - Contains no additive with no gel separator
  - Used for collection of serum for selected chemistry studies, immunohematology studies, and special testing
  - Do NOT store serum on cells. Serum must be removed from cells within 60 minutes after centrifugation for testing, shipping and storage
  - **Note:** Let tube clot for 20-30 minutes before centrifugation
  
- **Royal Blue Top Tube with No Ring (Two types):**
  - Purple Label:
    - Contains EDTA with no gel separator
    - Used for the collection of whole blood for trace metal analysis
    - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
  - Red Label:
    - Contains no additive with no gel separator
    - Used for the collection of serum for trace metal analysis
    - When removing serum from cells, do NOT use a transfer pipette, as it can introduce trace metals to the specimen; transfer serum to metal-free, screw-capped, plastic vial
    - **Note:** Let tube clot for 20-30 minutes before centrifugation
  
- **Yellow Top Tubes (Two types):**
  - ACD-A:
    - Contains ACD type A anticoagulant with no gel separator
    - Used for collection of whole blood for special testing
    - **Glass Tube:** Use caution when transporting
    - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
  - ACD-B:
    - Contains ACD Type B anticoagulant with no gel separator
    - Used for collection of whole blood for special testing
    - **Glass Tube:** Use caution when transporting
    - **Note:** After collection, immediately invert tube several times to mix, to prevent coagulation
  
- **Special Collection Tubes:**
  - Some tests require specific tubes/kits for proper analysis. Please contact Billings Clinic Laboratory prior to patient draw to obtain the correct tubes for these tests.