

Serum separator collection tubes contain a gel that separates the clot from the serum in whole blood specimens. During centrifugation, the gel moves to create a barrier between cells and serum, providing access to the serum for various chemistry, serology, and other procedures. Serum separator tubes are recommended for most testing, but please check individual specimen requirements for restrictions.

When using a serum separator tube, collect the specimen using standard venipuncture technique. Gently invert the tube five (5) times to mix the clot activator with the blood. Avoid vigorous agitation of collected specimens. Allow the tube to clot for 20-30 minutes in a vertical position. **Do not centrifuge immediately after drawing the blood. Do not allow the blood to clot with the tube in a horizontal position. Do not allow the tube to stand more than one hour before centrifuging.**

Centrifuge the tube for 10-15 minutes at about 1300-1800 xg. The centrifuge RPMs will differ depending on the centrifuge and rotor used. Follow the manufacturer's recommendations. The gel barrier will form, separating the serum from the clot. After centrifugation, the gel should be intact and the cells and serum completely separated. Do not re-centrifuge the tube if the barrier is incomplete. Contact the laboratory if you are having difficulty centrifuging specimens.

Purple or Lavender: K₂ EDTA. This is a strong anticoagulant and these tubes are usually used for complete blood counts (CBC). Lavender top tubes are generally used when whole blood is needed for analysis. Can also be used for some blood bank procedures such as blood type and screen. **Note:** After the tube has been filled with blood, immediately invert the tube several times to prevent coagulation.

Light Blue-Top Tube (Sodium Citrate): This tube contains sodium citrate as an anticoagulant and is used for drawing blood for coagulation studies.

Note: It is imperative that the tube be **completely filled**. The ratio of blood to anticoagulant is critical for valid prothrombin time results. Immediately after draw, invert the tube 6 to 10 times to activate the anticoagulant.

Red-Top Tube: This tube is a plain VACUTAINER® containing no anticoagulant and is used for collection of serum for selected chemistry tests as well as clotted blood for immunohematology.

ORDER OF DRAW

Blood collection tubes must be drawn in a specific order to avoid cross-contamination of additives between tubes. The recommended order of draw for plastic vacutainer tubes is:

1. First - blood culture bottle or tube (yellow or yellow-black top)
2. Second - coagulation tube (light blue top). If just a routine coagulation assay is the only test ordered, then a single light blue top tube may be drawn. If there is a concern regarding contamination by tissue fluids or thromboplastins, then one may draw a non-additive tube first, and then the light blue top tube.
3. Third - non-additive tube (red top)
4. Last draw - additive tubes in this order:
 - i. SST (red-gray or gold top). Contains a gel separator and clot activator.
 - ii. Sodium heparin (dark green top)
 - iii. PST (light green top). Contains lithium heparin anticoagulant and a gel separator.
 - iv. EDTA (lavender top)
 - v. ACDA or ACDB (pale yellow top). Contains acid citrate dextrose.
 - vi. Oxalate/fluoride (light gray top)

NOTE: Tubes with additives must be thoroughly mixed. Erroneous test results may be obtained when the blood is not thoroughly mixed with the additive.

	TUBE	SPECIMEN	STORAGE	VOLUME
PROFILES				
AMA Basic Metabolic	SST	Serum	Refrigerator/Freezer	2 mL
AMA Complete Metabolic	SST	Serum	R/F	2 mL
AMA Electrolytes	SST	Serum	R/F	2 mL
AMA Hepatic	SST	Serum	R/F	2 mL
AMA Lipid	SST	Serum	R/F	2 mL
CHEMISTRY				
Albumin	SST	Serum	R/F	1mL
Alk Phos	SST	Serum	R/F	2mL
Alt (SGPT)	SST	Serum.	R/F	1mL
Amylase	SST	Serum	R/F	1mL
AST (SGOT)	SST	Serum.	R/F	1mL
Bilirubin, Direct	SST	Serum	R/F	1mL
Bilirubin, Total	SST	Serum	R/F	1mL
Calcium	SST	Serum	R/F	1mL
Chloride	SST	Serum	R/F	1mL
Cholesterol	SST	Serum	R/F	1mL
CO2	SST	Serum	R/F	1mL
Creatinine (eGFR)	SST	Serum	R/F	1mL
GGTP	SST	Serum	R/F	1mL
Glucose	SST	Serum	R/F	1mL
GlycoHgb A1C	L	Whole Blood	Refrigerated only	3mL
HDL Cholesterol	SST	Serum	R/F	1mL
Iron and TIBC	SST	Serum	R/F	1mL
LDL Cholesterol (Cal)	SST	Serum	R/F	1mL
Magnesium	SST	Serum	R/F	1mL
Phosphorus	SST	Serum	R/F	1mL
Potassium	SST	Serum	R/F	1mL
Sodium	SST	Serum	R/F	1mL
Triglycerides	SST	Serum	R.F	1mL
Total Protein	SST	Serum	R/F	1mL
Urea Nitrogen	SST	Serum	R/F	1mL
Uric Acid	SST	Serum	R/F	1mL
Vitamin D (25 Hydroxy)	SST	Serum	R/F	1 mL
PSA	SST	Serum	R/F	1 mL
VIRAL MARKERS				
HEP B Surface Ab	SST OR RED	Serum	R/F	3mL
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HEP C Ab	SST OR RED	Serum	R/F	3mL
HIV ½ Ag/Ab	SST OR RED	Serum	R/F	2mL

ANEMIA				
B12	SST	Serum	R/F	3mL
Folate	SST	Serum	R/F	3mL
Ferritin	SST	Serum	R/F	3mL
COAGULATION				
Protime (PT) w/INR	B	Whole Blood	Refrigerated by 24 hours	4.5mL
APTT	B	Plasma	Frozen	4.5mL
THYROID				
Total T4	SST OR RED	Serum	R/F	2mL
Free T4	SST OR RED	Serum	R/F	2mL
Total T3	SST OR RED	Serum	R/F	2mL
TSH	SST OR RED	Serum	R/F	2mL
HEMATOLOGY				
CBC	L	Whole Blood	R	1mL
Sedimentation Rate	L	Whole Blood	R	2mL
URINE				
UA with Microscopic	U	Urine	R	5mL
SEROLOGY				
RPR	SST OR RED	Serum	R/F	1mL
PREGNANCY				
HCG - Quant	SST or RED	Serum	R/F	1mL

LEGEND

SST - serum separation tube

RED – red top tube

L – Lavender top tube

B – Blue top tube

U – Urine

R/F - Refrigerator/Freezer

WB – Whole Blood