

Centrifuging Serum and Plasma

Clot Serum Specimens

Specimens being processed to yield serum should be allowed to completely clot for 15-60 minutes at room temperature. Centrifuging serum that is not completely clotted may cause the formation of fibrin in the serum, which may render the sample unusable for testing. Specimens being processed to yield plasma, like light green and blue top tubes, may be spun immediately after collection and mixing.

Centrifuge Promptly

It is important to separate the cellular and liquid portions of a blood specimen as soon as possible when the test requires a sample of serum or plasma. This is because the cells interact with the serum/plasma, altering its chemical composition and affecting test results.

The longer a specimen remains in contact with cellular elements, the greater the effect on the test results. In general, processing should occur within 2 hours of collection, however tests that are more sensitive to cellular contamination may require more prompt separation.

Gel Separator Tubes

Serum Separator Tubes (SST) and Plasma Separator Tubes (PST) contain separator gel additives. During centrifugation, the gel moves to create a physical barrier between the cellular elements and the serum/plasma. This feature often eliminates the need for an aliquot tube, however they are not suitable for some tests that are sensitive to chemical interference from the separator gel.

Tubes without Gel Separator

Specimens collected in tubes that do not contain a gel separator must be separated after centrifugation by physically removing the supernatant plasma or serum with a pipet and transferring to a plastic aliquot tube. Indicate contents of tube on label (serum, plasma, etc).

Centrifuge Time

Centrifuge specimens for 15 minutes at 3400 rpm unless specified otherwise.

Specimen Storage

Unless specified otherwise, immediately store processed specimens upright in a refrigerator. For instructions on packaging specimens for transport to the laboratory, see Specimen Packaging & Transport.

Centrifuge Operation

If your client contract includes the provision of centrifuge equipment, please adhere to the following centrifuge operation instructions and maintenance procedures.

1. All employees are to be instructed in the proper use of the centrifuge before being allowed to operate it.
2. All employees must follow universal precautions when operating or cleaning the centrifuge. This includes, but may not be limited to, wearing gloves and laboratory coats.
3. VACUTAINER ® tubes containing blood are to be centrifuged with stoppers left in place. Any other tubes containing hazardous substances (i.e., body fluid, urine) must also be capped during centrifugation to prevent the production of biohazardous aerosols.
4. The centrifuge load must be properly balanced. Load an equal number of test tube cups, cup cushions and specimen tubes of equal size and weight, arranging them symmetrically inside the rotor head. An unbalanced load will cause poor specimen separation, excessive noise and vibration, and will result in increased wear on the rotor.
5. Keep the centrifuge closed and locked during operation.
6. When centrifuge is ON, an indicator light on the front of the unit will illuminate.
7. Refer to the instrument manual for on-off operation instructions.
 - Do not use your hand or any mechanical device to stop the rotor.
8. If unusual noises or vibrations occur during operation of the centrifuge, immediately turn off the centrifuge, and use the power brake to slow down the rotor until completely stopped. Unplug the unit and, using caution to guard against any sharps hazard, identify and eliminate the source of the problem, if possible.
9. The operator is responsible for the condition of the machine at the end of each use (i.e., turning off the power, cleaning up spills, etc).

Centrifuge Maintenance

1. Provide Adequate Ventilation. Place the centrifuge on a hard smooth surface; do not block air circulation around base of centrifuge.
2. Clean the centrifuge every six months, or whenever a spill or breakage of a specimen tube occurs. Cleanliness of a centrifuge is important in minimizing the possible spread of infectious agents. To clean;
 - Unplug the unit from the electrical wall outlet.
 - Pull out the test tube holders and remove the knob at the center of the rotor by turning it counterclockwise. Then carefully lift the rotor out.
 - Wipe the interior bowl with a cloth dampened with 5% bleach or other suitable disinfectant and wipe dry.
 - Test tube holders and rotor may be submersed in a solution of warm water and bleach or disinfectant.
 - Thoroughly rinse rotor and test tube holders with water. *Do not autoclave rotor.*
 - Invert cups and rotor on an absorbent surface and allow to air dry overnight.
 - Any residual water accumulated inside a centrifuge may cause the centrifuge to become unbalanced.
3. EMH Reference Laboratory is responsible for the regular maintenance and repair of equipment, and will service centrifuges as needed. Please report the following conditions to Client Services at 331-221-4422:
 - Poor separation of blood specimens after centrifuging for 15 minutes.
 - Due date for calibration (located in the green dot sticker on the outside of the centrifuge) is approaching or past.
 - Electrical cord or plug is worn or damaged.
 - Centrifuge does not turn off after appropriate time setting.
 - Rotor collar gasket is damaged, worn or missing.
 - Rotor is worn or cracked.
 - Any other problems with centrifuge operation

