

Safe Use of Centrifuges

RSS 20.11.4

1. All operators must have successfully completed an authorized training session on the safe use of Centrifuges. This requirement applies to both new and experienced personnel. Contact your research supervisor or the microbiology laboratory technician to arrange training.
2. Safe use of centrifuges requires proper maintenance and operation. Failed mechanical parts or improper operation can result in release of projectiles, hazardous chemicals and bio-hazardous aerosols. Maintenance and repairs must be performed only by trained, qualified personnel. To maintain your safety, sample integrity and the equipment, follow these guidelines.
3. Ensure that centrifuges have an interlocking device that will prevent both the lid from being opened when the rotor is in motion and the centrifuge from starting when the lid is open.
4. Ensure that centrifuge tubes are free of hairline cracks, stress lines and chipped rims prior to use and that tube materials have appropriate chemical resistance and speed rating. Whenever possible use plastic tubes in place of glass.
5. Avoid over-filling tubes and cap or stopper centrifuge tubes.
6. Use sealed centrifuge buckets (safety cups) or rotors that can be loaded and unloaded in a biological safety cabinet (BSC) or chemical fume hood as appropriate. If sealed buckets are not available allow tubes to sit for 30 minutes after centrifugation to allow aerosols to settle.
7. After spinning, open all Eppendorf tubes carefully to avoid splashing. If splashing or misting is a concern, open Eppendorf tubes inside a chemical fume hood or BSC.
8. Decontaminate the outside of the cups/buckets and rotors before and after centrifugation.
9. Inspect O-rings regularly and replace if they are cracked or dry.
10. Ensure that the centrifuge is properly balanced. Load the rotor with samples arranged symmetrically. Opposing tubes must be of equal weight. If necessary, use "water blank" tubes to balance sample tubes of unequal weight. Do not use sight or volume to conclude that tubes are balanced. Use an analytic balance to balance tubes before using them in an ultracentrifuge.
11. Ensure that the prescribed speed limitations of the rotor or centrifuge are never exceeded.
12. Unless fitted with a suitable exhaust system, do not centrifuge materials capable of creating flammable or explosive vapors.
13. Remain with the centrifuge until it has reached its programmed speed.
14. Abort the run immediately if you hear abnormal vibration, whining or grinding noises. Check the rotor lid and balance.
15. Since rotors are easily damaged, when cleaning them, ensure that the rotor and centrifuge are cleaned according to manufacturer's instructions. Never use abrasive cleaners or metal tools.

16. If the centrifuge is connected to a vacuum pump, ensure that the pump exhaust is connected to a trap. If bio-hazardous materials are being centrifuged and the centrifuge is connected to a vacuum pump, ensure that a HEPA filter is installed between the centrifuge and the vacuum pump.
17. In the event of a spill in the centrifuge, immediately call security and if biological, follow instructions in RSS 20.18.4, otherwise, follow instructions outlined in RSS 20.34.2.