

Safe Use of Centrifuges

1. 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.
2. 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.
3. Ensure that centrifuge tubes are free of hairline cracks, stress lines and chipped rims prior to use.
4. Ensure that tube materials are chosen such that they provide the necessary chemical resistance and speed rating.
5. Avoid over-filling tubes.
6. Cap or stopper centrifuge tubes.
7. Use sealed centrifuge buckets (safety cups) or rotors that can be loaded and unloaded in a biological safety cabinet or chemical fume hood as appropriate.
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 electronic balance to balance tube 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. At the end of the run ensure that the rotor and centrifuge are cleaned according to manufacturer's instructions. Never use abrasive cleaners.
16. Rotors are easily damaged. Never use metal tools to remove tubes or clean the rotors.
17. If the centrifuge is connected to a vacuum pump, ensure that the pump exhaust is connected to a trap.
18. 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.
19. In the event of a spill, follow instructions in SEM 20.15 through SEM 20.18, depending on size and location.