



Eppendorf™ 5810R Centrifuge

1. Purpose:

To provide step by step guidance on using and maintaining the Eppendorf™ 5810R Centrifuge.

2. Scope:

Applies to all authorized Principal Investigators (PIs) and authorized laboratory personnel using the Eppendorf™ 5810R Centrifuge in the LM CL2 facility (DB440).

3. Prerequisites:

You are an authorized user of DB440 and are either included in your PI's permit, or you possess a CL2 permit for DB440.

4. Responsibilities:

It is the responsibility of all faculty, staff and students to follow the procedures described in this SOP.

5. Personal Protection Equipment (PPE):



6. Procedure:

Before a Centrifugation run

- 1) Go through the pre-centrifuge run inspection checklist below:
 - i) Visually check that there are no cracks/damages on the bottles/tubes/plates/rotor.
 - ii) Ensure that the tubes and rotors are dry and clean. iii) Visually check if the overall centrifuge is in good condition.
- 2) Turn on the centrifuge and open the centrifuge lid.
- 3) Put the rotor onto the motor shaft, place the rotor key into the rotor nut and turn the rotor key clockwise until the rotor nut is tightened.
 - i) NOTE: The rotor has been inserted properly if you are able to see its maximum speed on the display (displays for 2 seconds).

Preparing samples for centrifugation

- 4) Fill plates/tubes working inside a BSC and wipe their exterior with 70% ethanol before taking them out of the BSC.
 - i) Ensure that you do not fill them past 3/4 of their maximum capacity.
 - ii) Ensure that all the filled tubes/plates are roughly the same mass.
- 5) If loading plates:
 - i) Ensure that the plates perfectly fit into the bucket (not too big/small). If loading tubes:
 - i) Ensure that you fasten lids on the tubes and label them before loading.

Loading your samples

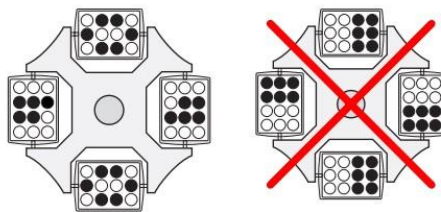


Fig. 4: Incomplete, but symmetric loading of the buckets. The pegs of each bucket must be loaded equally.

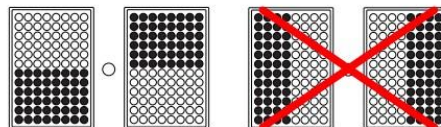


Fig. 5: Symmetrical loading of the plates.


The plate arrangement shown on the right-hand side is incorrect, as the buckets will not swing properly.

- 6) Ensure that your samples are balanced (see above).

- 7) Place aerosol-tight caps (biosafety caps), shown below, on the buckets by following the instructions on the [Eppendorf Canada website](#).
 - i) Ensure that they are properly secured before starting the run.



Starting the run

- 8) Push the centrifuge lid down and hold it until the lid latch engages and the lid is closed automatically.
 - i) To ensure that the lid is closed, the “Open” button will turn blue and the display will show this: 
- 9) Select the speed/g-force (set the radius if setting the g-force), run time, temperature, and press the “start/stop” button to start the run.
 - i) Ensure that the temperature is set between -9 °C and +40 °C. ii) **Remain on site until the centrifuge reaches the set speed to monitor performance and to ensure the run is balanced (running safely without noise and vibration).**
 - i. If unusual noises/vibration or other unusual conditions occur, immediately stop the run by pressing the “start/stop” button.
 - iii) **Log-in your use of the centrifuge using the log provided on site. Copies can be found in Appendix.**
 - i. This helps determine when preventative maintenance should be done to the centrifuge.

After a Centrifugation run

- 1) When the centrifuge stops and the “open” button lights up, wait at least 10 minutes before opening the lid (if you have not used biosafety caps).
- 2) Check to see if there are spills in the centrifuge. If so, follow the [“Biological Spill” SOP](#)
- 3) Remove the buckets with the biosafety caps on and bring them to a BSC as a unit. Unload the tubes/plates.
 - i) NOTE: Never remove the biosafety caps outside of a BSC or you will be exposed to aerosols generated during the run.
 - ii) Follow the [“Biological Spill” SOP](#) if you notice any spills in the buckets due to broken tubes/plates.
- 4) Wipe the exterior of the buckets and the inside of the biosafety caps with 70% ethanol before taking them out of the BSC.

- 5) Ensure that the centrifuge lid is completely opened and that it can stay in that position without falling. Switch the centrifuge off.

Centrifuging infectious materials or human samples

- Place a biohazard label on the centrifuge.
- Always wear gloves when handling tubes or rotors.
- Avoid the use of celluloid tubes with biohazards. If celluloid tubes must be used, an appropriate chemical disinfectant must be used to decontaminate them.
- **Always use sealed safety cups**, safety buckets, or sealed rotors with O-ring as secondary containment if available.
- Fill centrifuge tubes, load into rotors, remove from rotors, and **open tubes within a biological safety cabinet**.
- Wipe exterior of tubes or bottles with disinfectant prior to loading into rotor or bucket.
- Seal rotor or bucket, remove outer gloves, and transport to the centrifuge.
- **Always wait at least 10 minutes after the run to allow aerosols to settle before opening the centrifuge.** Check for possible spills or leaks. See emergency procedures, below.

Emergency Procedures:

1. Emergency Situations

The following events are considered an emergency:

- If there is a spill in the centrifuge
- If centrifuge malfunctions
- If there is rotor failure
- If there is tube breakage

2. Emergency Procedures

- Turn centrifuge off immediately, close the centrifuge lid.
- Notify others, evacuate the facility, close the door, post a biohazard spill sign at the facility door.
- Leave for 30 minutes to reduce the risk of aerosols. For spill clean-up, the operator should wear proper gloves, remove debris, clean, and disinfect centrifuge interior, rotors, safety cups or buckets following the manufacturer's instructions/instructions posted on-site.
 - Use 1% sodium hypochlorite to disinfect the centrifuge and its parts. Contact time of 20 minutes.
 - Then thoroughly clean with soap and water, and rinse a minimum of 3 times with water.
 - Do a final decontamination rinse with 70% ethanol.
- Place any contaminated protective clothing, gloves, and all clean-up materials in a biohazard bag. Wash hands and any exposed skin surfaces with soap and water.

Call 911 or seek immediate medical attention if overtly exposed to recombinant or synthetic nucleic acid molecules or Risk Group (RG) 2 infectious agents.

Report incidents to P.I.

Centrifuge Maintenance:

- Moisture, chemicals, strong cleaning agents, and other substances can promote corrosion of centrifuge parts and cause centrifuge failure. The following are general maintenance recommendations:
 - Follow manufacturer instructions for maintenance and cleaning.
 - Keep the centrifuge clean and dry. Only use cleaning agents that are compatible with the centrifuge. Avoid aggressive or corrosive cleaning and disinfecting agents.
 - Clean the centrifuge and its accessories by wiping with 70% ethanol. Use a damp cloth/paper towel. Complete cleaning procedure can be found in the [Facility Duties Checklist](#) and follow instructions posted on-site.
 - Cleanup all non-infectious spills immediately. For infectious spills see Emergency Procedures above.
 - Never clean rotors and associated parts with abrasive wire brushes.
 - Store the rotor upside down in a dry place, with lids or plugs removed, to prevent condensation.
 - Remove adapters after use and inspect for corrosion.
 - Inspect rotor regularly. Remove rotors from use that show any sign of defect and report it to a manufacturer's representative for inspection.

Maintaining a Logbook:

To avoid rotor failure, keep a logbook for high-speed rotors, recording the length of time and speed for each use. Track and discard rotors according to the manufacturer's recommended schedule. See logbook below in Appendix.

