

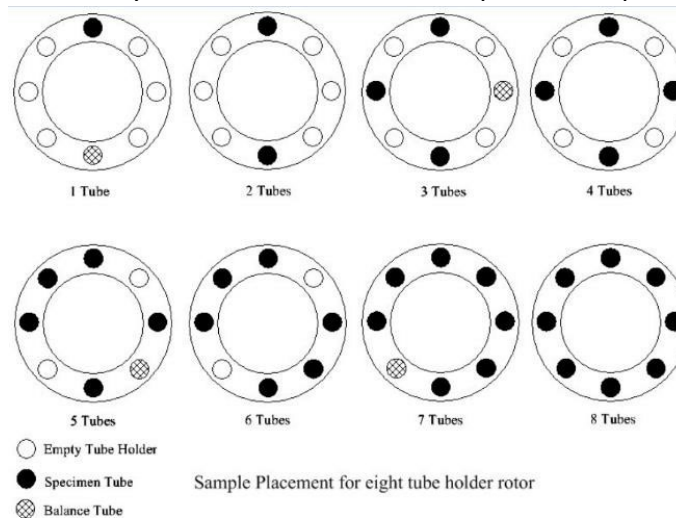
Centrifuge Safety Precautions

Centrifuges can be dangerous if used improperly. It can cause injuries and equipment damage. Please read these guidelines carefully before using a centrifuge in ACE.

Before Use:

- ❖ Inspect centrifuge tubes:
 - Check product specifications (e.g., speed, chemical resistance, filling limit) to ensure tube ratings are suitable for your intended use.
 - Examine tubes before filling them with solutions, ensure there are no cracks or signs of deterioration.
 - Tightly cap tubes to prevent spillage.
 - Clean and dry tube surfaces before inserting them into the rotor.

- ❖ Balance the load:
 - Balance tubes by mass (not volume) at least to the nearest 0.5 gram.
 - When using 15mL tubes, please use adaptors before balancing.
 - Load the rotor symmetrically. Please refer to the examples in the provided picture.



- If the number of tubes is uneven, balance with an additional tube of water.
 - Imbalanced loads can cause injuries and permanent damage to the machine.
-
- ❖ Ensure dry and clean rotor and adaptors:
 - Check the centrifuge rotor and tube adaptors for any liquid before use to prevent imbalance.

During Centrifuge Operation:

- ❖ Set appropriate speed and time:
 - Never exceed recommended values from the manufacturers of centrifuge tubes and centrifuge rotors.

- ❖ Wait for full operating speed:
 - Do not leave the centrifuge until it reaches the set speed and runs safely without unusual noise or shaking.

- ❖ Respond to unusual noise or shaking:
 - A little vibration is normal, but excessive shaking can be dangerous.
 - If you notice unusual noise or shaking, stop the centrifuge, and re-weigh your tubes.
 - Seek assistance from a Technical Officer if needed.

After Use:

- ❖ Stopping the centrifuge:
 - Ensure the centrifuge comes to a complete stop before opening the cover.
 - When centrifuging hazardous materials, wait at least 10 minutes to allow aerosols to settle before opening centrifuge.

- ❖ Cleaning and Maintenance:
 - After each use, make sure the centrifuge rotor and tube adaptors are dry and clean.
 - Check for any leakage from centrifuge tubes. If there is a spill, take responsibility for cleaning it up:
 - Remove the solution to a suitable waste container.
 - Clean the centrifuge and rotor thoroughly with tap water.
 - Dry them completely.
 - Uncleaned spills can corrode the rotor, cause load imbalance, contaminate other users' samples, and pose risks.

In case of doubt, please contact the ACE Technical Office for assistant.