

Standard Operating Procedure - Analytical Balance



SCOPE:

To provide a procedure for the operation of Analytical balance.

RESPONSIBILITY:

User-QC

ACCOUNTABILITY:

Head of the Department-QC

DEFINITION:

It is a balance that shows the weight of a substance digitally and is used to weigh chemicals in labs.

PROCEDURE:

- Make sure that the balance is kept clean.
- Ensure that the calibration status is valid.
- Ensure that spirit level is in the center of the circle.
- Connect the power cable to the mains and switch 'ON'.
- Warm up the balance.
- Apply power in advance for one hour or more. This will allow you to immediately make an accurate measurement.

- Even if the balance is not used, keep the standby mark lit (warm-up state) by pressing the POWER/BRK key without disconnecting the AC adapter. ► If the balance is not used for one month or more, disconnect the AC adapter.
- Preparation for weighing making a measurement mode > Press the POWER/BRK key. The standby mark goes off and all displays light. Check that there is no segment that is not lit. ► The balance shows zero and enters the measurement mode.

MEASUREMENT

- When using a tare, load the tare on the pan and press the TARE key after a stability mark is lit. ► Check that the display shows zero.
- Load a sample. When the stability mark is lit, read the display. If the total mass of the sample and tare exceeds the weighing capacity, “OL” will be displayed.
- X Tare: A sample container or other. Stability mark (→): Lights when the displayed value falls within the stability band. When the load change is slow, the displayed value will fluctuate with the stability mark lit.

PRECAUTIONS:

- Do not weigh on the pan directly. Always use butter paper.
- Do not place heavy glassware on the pan. It may damage the instrument
- Do not weigh corrosive acids & hot materials. > Do not shift the balance once positioned
- Do not give a shock to the pan.
- Do not open the balance case.
- Do not expose the balance to anything magnetized.
- Do not connect anything other than the specified equipment to the connector on the rear side of the balance.
- After completion of weighing keep the inside area clean.

REFERENCES: Instrument Manual

Standard Operating Procedure – Centrifuge Machine



SCOPE/PURPOSE:

To provide a procedure for the operation of Laboratory Centrifuge Machine

DEFINITION:

A centrifuge spins samples at a high speed, the centrifugal force causes denser materials to travel to the bottom of the centrifuge tube rapidly. This allows for the separation of liquid and solid samples.

RESPONSIBILITY:

User-QC

ACCOUNTABILITY:

Head of the Department-QC

INSTRUCTIONS BEFORE USE:

- Provide proper earthing
- Power 230 V AC/50 Hz
- For vibration free performance
 - (a) Ensure level and stability
 - (b) Balance Centrifuge Tubes
- Never attempt to slow or stop a rotor by hand
- Never attempted to take tubes out of router (head) for cleaning tubes
- Clean tubes with the help of cleaning brush

- Do not lean on the Centrifuge or Place items on it.

BASIC OPERATING PROCEDURE:

The procedure below is meant to offer a general procedure for guidance and safety considerations when using a centrifuge.

1. Inspect the centrifuge to ensure it is working properly, there is no damage, and that the centrifuge is able to move freely.
2. Select the appropriate centrifuge tubes or containers, inspect them to make sure there are no cracks or flaws. Discard any tubes/containers that are cracked or flawed.
3. Fill tubes with the desired liquid. a. Never overfill or under fill the tubes or containers (follow the manufacturer's limits).
4. Make sure that the centrifuge tubes are balanced, use a balance to ensure that the weights of both tubes match. a. Do not balance based purely on volume. This is especially true for solutions with different samples or different concentrations of the same sample.
5. Tightly secure the lids on the centrifuge tubes.
6. Make sure that the outside of the centrifuge tubes are clean and dry before placing them in the centrifuge.
7. Balance the tubes within the centrifuge. Tubes should be weighted to ensure that they balance properly.
8. Close the lid. Make sure the lid has a tight fit.
9. Set the run speed and run time. (Never use the rotor's maximum run speed).
10. Do not leave the centrifuge until it is operating at full speed and the machine seems to be running smoothly. Ensure that there is no abnormal noise or vibration.
11. If you notice an unusual noise or vigorous shaking, immediately turn the centrifuge off and remove it from the power source. a. Typically this is caused by the centrifuge not being balanced properly. If the problem does not resolve and the centrifuge is balanced properly, most likely the centrifuge is broken, do not use the centrifuge until it is fixed.
12. Once the centrifuge has completed its run, allow the centrifuge to stop its rotation before opening the lid. Never open the lid or touch the centrifuge before it has stopped its rotation. Stopping the machine prematurely can lead to injury and mechanical failure.
13. Preferably do not open the lid for at least 10 minutes after the rotation has stopped to allow the aerosols that were released during centrifugation to settle. a. If centrifuging hazardous materials use the centrifuge in a fume hood or glovebox. b. If centrifuging biosafety level 2 materials the centrifuge must be used in a biosafety cabinet or rotors must have aerosol containment. c. If centrifuging radioactive materials, use the appropriate shielding during this process.
14. After the centrifuge has completely stopped moving, you may remove your samples from the centrifuge.

PREVENTIVE MAINTENANCE

- Some high-speed centrifuges (e.g. Ultra-centrifuges) must be certified annually, know the certification schedule for the centrifuge you are using and ensure it is certified according the manufacturer' recommendation.
- Always follow the manufacturer's instructions for cleaning and maintaining the centrifuge.
- Clean the centrifuge regularly. Moisture, chemicals, strong cleaning agents, and other materials can promote corrosion and led to centrifuge failure. Ensure that the centrifuge is kept clean and dry.
- Decontaminate the rotor after using biological materials, to clean the rotors and cups use 10% bleach for 30 minutes followed by 70% ethanol and let air dry.
- Inspect the rotor regularly, do not use a centrifuge if the rotor shows any defects or corrosion.
- Never use abrasive wire brushes to clean the rotors or any associated parts of the centrifuge.
- Cleanup any spills immediately.
- Ensure that your centrifuge is properly lubricated. (If necessary lubricate the bucket grooves, pivots of swing-bucket rotors, and rubber seals.)
- Check the seals of aerosol tight lids/caps, replace as needed.

REFERENCES: Instrument Manual

Standard Operating Procedure - Muffle Furnace



SCOPE/PURPOSE:

To provide a procedure for the operation of Muffle furnace.

RESPONSIBILITY:

User-QC

ACCOUNTABILITY:

Head of the Department-QC

PROCEDURE:

CLEANING PROCEDURE

- Check that the power supply to the instrument is switched “OFF”.
- Ensure that the Muffle Furnace is not in hot condition or in operation while cleaning.
- Clean the instrument externally with clean dry cloth.

OPERATING PROCEDURE

- Ensure that the instrument is connected to the power supply.
- Switch “ON” the main power supply, glowing of red light at mains indicates the power supply
- Switch on the instrument by ON position which leads to activation of green control bulb and the temperature controller.
- Set the temperature required by pressing and holding the red ‘PRESS TO SET’ button and rotate the adjusting screw to set the required temperature and release the push button.
- The digital display shows the actual temperature of furnace and the red light of the temperature controller glows.
- When the temperature reaches the setting point, the red light of the temperature controller automatically switched “OFF” and the green light will glow. The equipment is now ready for operation.
- If any discrepancy is observed during operation, inform the maintenance department for rectification.

PRECAUTIONS:

- Do not give a shock to the Muffle furnace. Do not connect anything other than the specified equipment to the connector on the rear side of the Muffle furnace.
- Never heat any flammable material or combustible materials inside the Muffle furnace.
- Use thermal gloves or tongs to remove work piece in the Muffle furnace.

REFERENCES: