

Beaumont

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Centrifuge Maintenance- Troy Chemistry

Document Type: Procedure

I. PURPOSE AND OBJECTIVE:

To instruct laboratory personnel on routine maintenance of centrifuges. This includes timing, speed and cleaning of each centrifuge located in the Chemistry Department.

II. EQUIPMENT:

- A. Centrifuges
- B. Stopwatch
- C. Tachometer

III. SUPPLIES:

- A. Diluted Dispatch Cleaner and Disinfectant
- B. Towels
- C. Anti-corrosive oil or grease

IV. PROCEDURE:

A. Cleaning

1. SORVALL LEGEND

Clean the exterior, rotor chamber, rotor, swinging buckets and tube holders monthly and after spills with diluted Dispatch Cleaner and Disinfectant.

- a. Turn off centrifuge at power switch.

- b. Remove swinging buckets from rotor noting their relative positions so that they may be replaced in their original positions.
- c. Wearing gloves, wipe inside of rotor chamber, rotor chamber lid and rotor with Dispatch Disinfectant Cleaner.
- d. Remove tube holders from swinging buckets and disassemble.
- e. Place tube holders and buckets in "Dirty Sink" or a suitable container and allow to soak for 10 minutes in the diluted Dispatch cleaner.
- f. Wipe down exterior of centrifuge with the Dispatch cleaner.
- g. Dry and assemble the tube holders. Dry the buckets and the rotor pins then, apply a thin coating of thick grease to the underside of the bucket which swings on the rotor pins. Place buckets onto the rotor. Place tube holders into the buckets.
- h. Grease the hinges using anti-corrosive oil

2. Biofuge Pico Centrifuge

Monthly or whenever there is a spill, clean the tube holder segments with cotton tipped applicator sticks moistened with diluted Dispatch Disinfectant Cleaner.

- a. Turn unit off (rocker switch on back panel) and unplug from the outlet.
- b. Wipe the rotor lid with a clean damp cloth and dry.
- c. Clean the exterior and interior of the centrifuge with Dispatch Disinfectant Cleaner.
- d. Grease the hinges using an anti-corrosive oil.

B. Time Checks

To check that the centrifuge is operating for the proper period of time, the run times for each centrifuge will be checked quarterly (every 3 months) against a stopwatch.

1. Sorvall Legend

Two times are currently used: 6 minutes for serum, fluid and urine samples (Program 1) and 20 minutes for cryoglobulin/crofibrogen blood samples (Program 2).

- a. Close the lid and select the appropriate program/time to be tested.
- b. Press the Start button on the centrifuge and at the same time the Start button on the stopwatch.
- c. When the centrifuge stops its powered timed cycle, stop the stopwatch.
- d. The stopwatch time and the centrifuge time should be within $\pm 5\%$ of each other.

Centrifuge Set Time	Acceptable Range
6 minutes	5 min, 42 sec - 6 min, 18 sec
20 minutes	19-21 minutes

- e. Record the stopwatch time on the Centrifuge Monthly Maintenance Sheet 6.
- f. If the time is not within the acceptable range, notify the Supervisor.

2. Fisher/Drucker Dash Centrifuges

The Dash centrifuges are preset to operate for 180 and 300 seconds

- a. Close the lid; press the Start button on the centrifuge and at the same time the Start button on the stopwatch. When the centrifuge stops its powered time cycle, stop the stopwatch.
- b. The stopwatch time should be 3 minutes \pm 5% for 180 seconds and 5 minutes \pm 5% for 300 seconds.

Centrifuge Set Time	Acceptable Range
3 minutes	2 min, 51 sec - 3 min, 9 sec
5 minutes	4 min, 45 sec - 5 min, 15 sec

- c. Record the stopwatch time on the Centrifuge Monthly Maintenance Sheet.
- d. If the time is not within the acceptable range, notify the Supervisor.

3. Fisher Accuspin Centrifuge

- a. Close the lid; press the Start button on the centrifuge and at the same time the Start button on the stopwatch. When the centrifuge stops its powered time cycle, stop the stopwatch.

The stopwatch time should read as follows:

Centrifuge Set Time	Acceptable Range
3 minutes	2 min, 51 sec - 3 min, 9 sec

- b. Record the stopwatch time on the Centrifuge Monthly Maintenance Sheet.
- c. If the time is not within the acceptable range, notify the Supervisor.

4. Baxter Clinifuge

The Baxter Clinifuge is pre-set to operate for 20 minutes.

- a. Close the lid and press the Start button on the centrifuge and at the same time the Start button on the stopwatch. When the centrifuge stops its powered timed cycle, stop the stopwatch.
- b. The stopwatch time should be 20 minutes \pm 5%.

Centrifuge Set Time	Acceptable Range
20 minutes	19-21 minutes

- c. Record the stopwatch time on the Centrifuge Monthly Maintenance Sheet.
- d. If the time is not within the acceptable range, notify the Supervisor.

C. Speed Check

Centrifuge speed is checked every quarterly using a tachometer. The tachometer directly measures RPM by aiming it at the reflective tape placed on the centrifuge rotor through the centrifuge lid.

1. Sorvall Legend

- a. Two speeds are currently used: 3,500 RPM for Program 1 and 3,000 RPM for Program 2.
- b. Close the lid and select the appropriate speed/program to be tested.
- c. Press the Start button and allow the centrifuge to reach its selected speed.
- d. Using the tachometer, read the speed through the View Port in the lid.
- e. The observed speed should be within $\pm 5\%$ of the set speed.

Centrifuge Set Speed	Acceptable Speed Range
3,500 RPM	3,325 - 3,675 RPM
3,000 RPM	2,850 - 3,150 RPM

- f. Record the tachometer speeds on the Centrifuge Monthly Maintenance Sheet.
- g. If the speed is not within the acceptable range, notify the Supervisor.

2. Fisher/Drucker Dash Centrifuges

The Fisher/Drucker DASH Centrifuge is preset to operate at 5,100 RPM.

- a. Close the lid and press the Start button.
- b. Allow the centrifuge to reach its preset speed.
- c. Using the tachometer, read the speed through the lid.
- d. The observed speed should be within $\pm 5\%$ of the set speed.

Centrifuge Set Speed	Acceptable Speed Range
5,100 RPM	4,845 - 5,355 RPM

- e. Record the tachometer speed on the Centrifuge Monthly Maintenance Sheet.
- f. If the observed speed is not within the acceptable range, notify the Supervisor.

3. Fisher Accuspin Centrifuges

The Fisher Accuspin Centrifuge is preset to operate at 4,500 RPM.

- a. Close the lid and press the Start button.
- b. Allow the centrifuge to reach its preset speed.
- c. Using the tachometer, read the speed through the lid.
- d. The observed speed should be within $\pm 5\%$ of the set speed.

Centrifuge Set Speed	Acceptable Speed Range
4,500 RPM	4,275 - 4,745

- e. Record the tachometer speed on the Centrifuge Monthly Maintenance Sheet.
- f. If the observed speed is not within the acceptable range, notify the Supervisor.

4. Baxter Clinifuge

The Baxter Clinifuge is preset to operate at 5,000 RPM

- a. Close the lid and press the Start button.
- b. Allow the centrifuge to reach its preset speed.
- c. Using the tachometer, read the speed through the lid.
- d. The observed speed should be within $\pm 5\%$ of the set speed.

Centrifuge Set Speed	Acceptable Speed Range
5,000 RPM	4,750 - 5,250

- e. Record the tachometer speed on the Centrifuge Monthly Maintenance Sheet.
- f. If the observed speed is not within the acceptable range, notify the Supervisor.

V. REFERENCES:

- A. Sorvall Legend T/RT Instruction Manual, Kendro Laboratory Products, Inc.; Asheville, NC 28804
- B. Fisher/Drucker Dash Apex Instruction Manual, Drucker Diagnostics, Philipsburg, PA.
- C. Fisher Scientific AccuSpin 24c Centrifuge Instruction Manual, January 2014.

Attachments

[Centrifuge maintenance.pdf](#)

Approval Signatures

Step Description	Approver	Date
	Vaishali Pansare: Chief, Pathology	3/6/2023
Policy and Forms Steering Committee (as needed)	Gail Juleff: Project Mgr Policy	2/22/2023
Policy and Forms Steering Committee (as needed)	Kristin Russell: Supv, Laboratory	2/21/2023
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