

SP063

Operation of Sorvall RC5B High Speed Centrifuge

Materials:

1. F13-14x50cy Fiberlite Rotor with:
 - a. 50 ml Falcon centrifuge tubes (VWR 21008-951)
or
 - a. 50 ml Teflon Oakridge tubes (VWR 21009-477) with adapters
or
 - b. 50 ml Polypropylene Oakridge tubes (VWR 21009-386) with adapters
2. F-16/250 Rotor with:
 - a. 250 ml Polypropylene Dry-Spin bottles (Fisher 50-866-751)
or
 - b. 250 ml Polycarbonate Dry-Spin bottles (Fisher 50-974-45)
3. SLA-3000 Rotor with:
 - a. 500 ml Polypropylene Dry-Spin bottles (Fisher 50-866-922)

Protocol:

1. _____ Select the appropriate tubes for your samples based on size, chemical compatibility, and required speed (note 1).
2. _____ Balance all tubes.
3. _____ Load the appropriate rotor into the centrifuge.
4. _____ Load your balanced samples into the centrifuge (note 2).
5. _____ Inspect the rotor lid to be sure the o-rings are intact. If necessary grease the o-rings with vacuum grease and the rotor screw threads with Spinkote.
6. _____ Screw the rotor lid on (these are left-handed threaded, so turn left to tighten) by first tightening the large knob to secure the lid to the rotor, then the small knob to secure the assembled lid/rotor to the centrifuge spindle.
7. _____ Close the centrifuge door.
8. _____ Select the desired temperature using the blue needle on the dial. Set the maximum temperature using the red needle (note 3).
9. _____ Select your desired run time.
10. _____ Select your desired speed based on the protocol and rotor you are using (note 4).
11. _____ Press the "Start" button.
12. _____ Sign up on the log sheet.
13. _____ Stay with the centrifuge until it reaches set speed.
14. _____ When the centrifuge is done and has come to a complete stop, the "Door" button will light up. Press this to release the door.
15. _____ Unscrew the rotor lid, **small knob first** (note 5), followed by the large knob.
16. _____ Remove your sample.
17. _____ Remove the rotor from the centrifuge and inspect to see if any spilling occurred. If so, wash and dry thoroughly before putting away.

18. _____ Turn off the centrifuge.

Notes:

1. Tube Selection:

Tube Type	Nominal Volume	Max Speed	Rotor	Adapter Needed	Compatibility With Commonly Used Aggressive Chemicals					
					Phenol	Ethanol	Acetone	Methanol	Chloroform	Ethylene Glycol
Falcon	Info not found	16,000 xg (or 29,000 xg)	Fiberlite	No	U	S	S	S	U	S
Teflon Oakridge	MUST be >35ml	50,000 xg	Fiberlite	Yes	S	S	S	S	S	S
P.P. Oakridge	42 ml max	50,000 xg	Fiberlite	Yes	M	S	S	S	M	S
P.P. Dry-Spin	250 ml	13,000rpm	F-16/250	No	M	S	S	S	M	S
P.C. Dry-Spin	250 ml	16,000rpm	F-16/250	No	U	U	U	U	U	U
500 ml Dry-Spin	480 ml	9,000rpm	SLA-3000	No	M	S	S	S	M	S

S = Satisfactory M = Moderate U = Unsatisfactory

- BD Falcon and Fiberlite give conflicting information on the maximum speed for 50ml Falcon tubes. Falcon state a maximum 16,000 xg. Fiberlite claims a maximum speed of 29,000 xg for BD Falcon brand tubes. Use caution when running at high speeds.
- Teflon Oakridge tubes are the most chemically resistant, however they must be run at full capacity in order to prevent the tube from collapsing. The teflon tubes are heavier and more white than the lighter weight “yellow” polypropylene.
- Polycarbonate Dry-Spin bottles are clear bottles (as opposed to the more opaque polypropylene). These bottles have poor chemical resistance, so should only be used for aqueous buffers.

2. If using Oakridge tubes in the Fiberlite rotor, you must place the small white adaptors in the rotor before loading your tubes. Be sure to remove these after your run. If you are using Falcon (conical) tubes in the Fiberlite rotor, check that all adapters have been removed before loading your tubes.

3. If the actual temperature is greater than the set maximum, the centrifuge will not start or will stop if the maximum temp is reached during a run.

4. Common centrifuge speed RPM conversions:

	5000xg	10000xg	12000xg	15000xg	16000xg	20000xg	25000xg	27000xg	30000xg	35000xg
Fiberlite	5,400	7,600	8,400	9,400	9,700	10,800	12,100			
F-16/250	5,700	8,100	8,900	9,900	10,300	11,500	12,800	13,300	14,100	15,200
SLA-3000	5,400	7,700	8,400	9,400	9,700	10,900				

- Fiberlite: **Max 24,676xg (12,000rpm)** – if a 1 hr 27,000xg spin is called for, a 25,000xg spin can be used by adding an additional 10 min
- F-16/250: Max 38,889xg (16,000rpm)
- SLA-3000: Max 20,450xg (11,000rpm)

5. Unscrewing the small knob first is essential. Failure to do so can cause the rotor lid to become stuck as the large knob can get jammed if opened first.