

1. PRINCIPLE

Routine maintenance and calibration of centrifuges provides quality assurance by ensuring proper performance, minimizing opportunities for specimen cross contamination and contributing to the control of environmental safety.

2. EQUIPMENT

2.1. Jouan MR22i

2.1.1. SN 39604173

2.1.2. Rotor AM2.19, radius 73 mm outer ring

2.1.3. Maximum RCF 23,586 xg

2.1.4. -8°C to +40°C

2.2. Heraeus Contifuge Stratos

2.2.1. SN 267585

2.2.2. Rotor #3332, radius 87 mm

2.2.3. Maximum RCF 28,110 xg

2.2.4. -19°C to +40°C

2.3. Beckman GS-R15R

2.3.1. SN GYB94M20

2.3.2. Rotor F2402H, radius 66mm

2.3.3. Maximum RCF 17,530 xg

2.3.4. -20°C to +40°C

2.4. Eppendorf Centrifuge 5415C

2.4.1. SN 98098

2.4.2. Rotor F45-18-11, 72 mm with 2 ml tube

2.4.3. Maximum RCF 15,800 xg

2.4.4. Ambient temperature

3. STANDARD/CONTROL

3.1. Calibrate rotor speed yearly through an outside service vendor.

3.2. Protocols must be readjusted if the actual RCF does not fall within $\pm 5\%$ of the nominal setting.

3.3. Temperature readings should fall within 5°C of the nominal setting. Call for service if the unit does not perform in the desired temperature range.

4. PROCEDURE:

4.1. Keep the interior of the rotor chamber clean and dry by wiping with gauze. 70% alcohol may be used. Check for debris between the drive shaft and boot.

4.2. After running refrigerated loads, allow condensation to evaporate or manually dry the chamber.

4.3. Inspect the centrifuge bowl and rotor. Clean the rotor periodically. Remove the rotor with the appropriate tools. Invert to remove debris. Clean with 10% bleach, followed by distilled water rinse and 70% alcohol rinse to aid in drying.

4.4. Lubricate the drive with Spinkote or equivalent lubricant after cleaning. Check for debris and clean as required

4.5. Clean the exterior of the units with 10% bleach followed by 70% ethanol to minimize contamination of gloves during sample processing.

4.6. The Jouan, Heraeus and Eppendorf rotors may be autoclaved, 20 minutes at 121°C , if desired.

4.7. Document the date of cleaning on the Centrifuge Maintenance Log.

5. OPERATION

5.1. Refer to the appropriate User's Manual.

6. CALIBRATION

6.1. Speed calibration shall be performed and documented annually in the ranges required by protocols in use.

6.2. The Jouan and the Heraeus may be used to process specimens at refrigerated temperatures. Check the temperature calibration of these units annually: Spin two tubes of 70% alcohol at the

protocol speed, temperature and time. Check the temperature of the contents of the tube using a calibrated thermometer. Document on the Centrifuge Maintenance Log.

7. CALCULATION OF RCF

7.1. The Jouan, Heraeus and Beckman units can display RPM or RCF as desired.

7.2. To calculate RCF:

$$RCF = 1.118 \times r \times N^2$$

Where r = radius in mm

RCF= relative centrifugal force

or gravitational acceleration 'g'

N= speed in RPM /1000

8. REFERENCES

8.1. Operator's manuals for all units are located in SM 5638 in the drawer marked "Manuals" under the Jouan Centrifuge.

9. ATTACHMENT

9.1. Centrifuge Maintenance Log