



LOCATION DETAILS

School/Branch: School of Molecular & Biomedical Science

SAFE OPERATING PROCEDURE DETAILS

Using Ultra and High Speed Centrifuges in Research work

Date Prepared:
17/02/2010

PREPARED BY: Name, position, & Signature (insert names of supervisor, HSO, subject matter expert)

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Signature:

RISK ASSESSMENT

Has a risk assessment been completed and all other environmental considerations been made?

See risk assessment dated:
09/02/2010

Risk Rating:
Low
Medium
High
Very High

YES

RISKS IDENTIFIED

- Electric shock from electrical components of machine
- Potential injuries from escaping material during centrifugation process
- Musculoskeletal injuries from handling heavy parts machine (e.g. rotors)
- Damage to machine from failure of rotating parts/rotor imbalance
- Chemical exposure due to leaking samples/contact with vapours

SAFETY PRECAUTIONS

The following control measures **MUST** be adhered to:

- Any person using an Ultra or High Speed Centrifuge **MUST** be trained in its operation by an experienced person.
- A person **MUST** be supervised during the first few runs.
- SOPs must be available on or near the Centrifuge
- Wear appropriate PPE at all times
- Display a DO's and DON'Ts poster near the centrifuge
- Must have a current electrical test tag and be maintained as per the manufacturer's instructions.
- Clean up any spills immediately using appropriate spill response procedures.
- Make sure rotor is **COMPLETELY STOPPED** before opening the centrifuge lid.
- Detail any spills or incidents and report to your supervisor immediately.
- If you need to move a rotor, use a trolley and get assistance to lift.

PERSONAL PROTECTIVE EQUIPMENT REQUIRED

The following PPE must be worn at all times:

- Lab Coat
- Safety Glasses

- Gloves

SAFE OPERATING PROCEDURE

1. Put on Personal Protective Equipment.
2. Perform a brief inspection of the machine to ensure the electrical cable and other components are in good condition.
3. Fill in the centrifuge log book.
4. Set up the parameters, speed time, temperature, accelerate and brake down speed.
5. Open the machine lid and motor lid, check if motor is properly seated to the drive hub.
6. Check the lid and seals for cleanliness and damage. Check seals on barrel of centrifuge are clean and lubricated.
7. Read through the Rotor Care and use instructions below.
8. Check the tubes for cracks. Make sure each tube compartment is clean and corrosion free. Use only correctly fitting tubes.
9. Weigh the samples in opposite positions closely. Note: Never fill the centrifuge tubes above the maximum recommended by the manufacturer.
10. Load the samples in rotor symmetrically. Tubes must be properly balanced in the rotor.
11. Seal and secure the motor with lid.
12. Close the machine lid.
13. Check safety switches so that the machine cannot be opened during operation.
14. Run the machine.
15. After completely stopped, open the machine and motor lid and take out the bottles/samples/tubes.
16. Check whether any spills have occurred. If there is a spill, take motor out, (decontaminate if using biological material) wash and dry it and put back on the drive hub, close the lid and turn off the machine.

NOTE: If a tube breaks, the centrifuge should be turned off and allowed to stand undisturbed for an appropriate amount of time before opening to allow aerosols to settle. Thirty (30) minutes is a commonly recommended waiting time. Clean and disinfect (decontaminate) the rotor.

ROTOR CARE AND USE

- Rotors and other exposed parts should always be kept clean, free of chemicals and chemical residues.
- To avoid corrosion, do not expose aluminium rotor components to strong acids or bases, alkaline lab detergents or salts (chlorides) of heavy metals (e.g. lead, silver, mercury).
- Check the centrifuge chamber, drive spindle and tapered mounting surface of the rotor are clean and free from scratches and/or burns.
- Damaged rotors must not be used.
- Wipe drive surfaces prior to installing the rotor.
- Make sure rotor, tubes, and spindle are dry and that the rotor is properly seated and secured to the drive hub. Do not operate the centrifuge without the appropriate rotor cover securely fitted with seals in place.
- Always complete the machine log book since the number of hours of operation determines the life of the rotor.
- Do not exceed the design mass for the maximum speed of the rotor. Failure of this precaution can result in dangerous and expensive rotor disintegration.
- Never exceed the manufacturer's stated maximum speed for any rotor.
- Balance the rotor to within the limits specified (take care that materials of similar densities are in opposite positions on the rotor).

OTHER INFORMATION

- NEVER exceed the maximum speed for any rotor.
- Be aware of any potential aerosols if seals on rotors have been compromised.
- Be familiar with unsafe situations or equipment operating conditions before beginning operation of centrifuges.

ADMINISTRATION

Note: This Safe Operating Procedure must be reviewed :

- a) after any accident, incident or near miss;
- b) when training new staff;
- c) if adopted by new work group;
- d) if equipment, substances or processes change; or
- e) within 5 years of date of issue.