

Risk Assessment Form

Procedure	Use of High performance Avanti JXN-30 centrifuge
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Name(s) of person performing the work	Users (Lab manager & Lab Technician & Tenants)		
Name & position of assessor	Khwaja Islam & Laboratory Manager	Signature	
Date of assessment	01/10/2018	RA Number	BioE 0007

Outline of procedure / activity:

The high performance (Avanti JXN-30) floor standing centrifuge is refrigerated that generates centrifugal forces required for a wide variety of applications.

Applications included:

- Routine processing such as sample preparations, pelleting, extractions, purifications concentrations, phase separations, and spin column and spin filter centrifugations.
- Rapid sedimentation of protein ppt, large particles, and cell debris.
- Preparation of subcellular organelles such as mitochondria, nuclei, chloroplasts, and crude microsomes.
- Separation of blood cells and cellular components.
- Pelleting of prokaryotic and eukaryotic cells.
- Gradient separations.
- Nucleic acid ppt.
- Virus and Bacteriophage isolations.

Use of high performance (Avanti JXN-30) floor standing centrifuge; Loading samples into rotors; installation of rotors into centrifuges for centrifugation; unloading and cleaning of rotors. The high performance JXN-30 is located in Innovation lab 1(696.10.14).

Operator must be trained in operating the high performance Avanti JXN-30 centrifuge to guarantee safe daily use. Untrained Personnel are not be allowed to operate the centrifuges. Users should operate the centrifuges according to instructions in the manual.

Safety precautions:

- Use only the Beckman Coulter rotors and accessories designed for use in the centrifuge.
- Before starting the centrifuge, make sure that the rotor tie-down device – in centrifuges requiring them – is securely fastened.
- Maintain a 30 cm (12 inches) clearance envelope around the centrifuge while it is running.
- Do not exceed the maximum rated speed of the rotor in use.

- NEVER operate the instrument without a rotor installed.
- NEVER attempt to slow or stop the rotor by hand.
- Do not move the centrifuge whilst the drive motor is spinning.
- NEVER attempt to override the door interlock system while it is operating.
- In the event of power failure, do not attempt to retrieve the sample from the centrifuge until the rotor has come to a stop. The time required for a rotor to come to a complete stop can vary from 1 to 9 hours depending upon the set speed while in operation.
- When glass tubes are run, be careful if these tubes break inside the chamber bowl. Examine and clean the gasket and/or chamber bowl with care because glass fragments may have become embedded in them.
- Do not place containers holding liquid on or near the chamber door. If they spill, liquid may get into the centrifuge and damage electrical or mechanical components.
- The centrifuge is not designed for use with materials capable of developing flammable or explosive vapours, or hazardous chemical reactions. Do not centrifuge such materials (example chloroform or ethyl alcohol) in the instrument or handle or store them within the 30-cm (1-ft) clearance envelope surrounding the centrifuge.
- Because leaks, spills, or loss of sample containment may generate aerosols, refer to COSHH assessment.
- Instrument gaskets have not been designed as bioseals for aerosol or liquid containment.
- Decontaminate the centrifuge and accessories (refer to manual) before requesting service by Beckman Coulter service engineer.

To avoid injury on high performance Avanti JXN-30:

- Keep doors, covers and panels closed and secured in place while the instrument in use.
- Take full advantage of the safety features of the instruments. Do not defeat safety interlocks and sensors.
- Acknowledge and act upon instrument alarms and error messages.
- Keep away moving parts.
- Report any broken parts to the lab manager.
- Open/remove and close/replace doors, covers, and panels with care.

Potential hazards

Substance or item handled	Associated Hazard (s)	Existing Control Measures	Risk (L/M/H)	Further Action required	Risk (L/M/H)
Use of Avanti JXN-30 centrifuge	Vibration due to imbalance load	All operators should be trained on proper operating procedures before operating the centrifuge. Wear PPE (lab coat and gloves and safety specs). Make sure that any rotor lid securing device and any rotor to spindle securing device is fully secured before starting the machine. Never exceed the maximum stated speed for any rotor. If vibrations occur, press stop button on the centrifuge immediately (DO NOT turn power off at mains) and reset tubes. Stay and observe the centrifuge until it reaches the maximum speed set.	L	No further action required if the existing control measures are adhere to.	L
Use of Avanti JXN-30 centrifuge	Mechanical failure at speed - due to possible violent movement of the machine itself or escape of a rotor at	Before used check the rotor, lids and seals are clean and no damage. A build-up of chemicals from spillages may cause tube to jam in rotor or corrosion which could lead to rotor failure. Damaged rotors must not be used and should be reported to the lab manager. If rotor	L	No further action required if the existing control measures are adhere to.	L



	speed from the machine.	breaks due to imbalance, or other reasons, do not operate centrifuge , inform the laboratory manager. Monthly inspection and cleaning of rotors by lab technician.			
Use of Avanti JXN-30 centrifuge	Chemical/Biological hazard – due to breakage of centrifuge tubes inside the rotor	In the event of centrifuge failure or imbalance due to sample breakage the centrifuge must be switched off and left to come to a complete stop. The lid must remain closed for at least 30 minutes to allow biological aerosols to settle. If broken sample tubes, use forceps to retrieve in case of cuts. Decontaminate after any breakages to prevent cross contamination (see manual). Never fill centrifuge tubes above the maximum recommended by manufacturer. (Refer to instruction manual). All rotors must be checked before and after use to ensure that tubes are intact. Any biological/chemical spillages must be cleaned up before returning the rotors to storage. Wear PPE (lab coat and gloves and safety specs).	L	No further action required if the existing control measures are adhere to.	L

Use of Avanti JXN-30 centrifuge	Electrical hazard - Electrical shock – danger of death.	Only trained personal are allowed to use the machine. Centrifuge has 32 amp single phase and fuse type C or D (blue commando socket). Regularly serviced by Beckman Engineer	L	No further action required if the existing control measures are adhere to.	L
Use of Avanti JXN-30 centrifuge	Manual handling – heavy rotors can cause injury when lifting or dropped	Users must be trained in the correct and safe use of centrifuge. Users should attend manual handling training. Trolley used to transport heavy rotors. Ensure annual service of centrifuge and rotors by Beckman service engineer.	L	No further action required if the existing control measures are adhere to.	L

Persons potentially at risk:

Only the user or others near by

Action in event of an accident or emergency:

1. **Fire:** raise the fire alarm and evacuate the area. Use correct fire extinguisher if you have been trained and it is safe to do so.
2. **If vibration occurs:** switch of centrifuge at the control panel.

Arrangements for monitoring effectiveness of control:

Daily inspection of equipment by lab technician.

Annual preventative maintenance carried by external contractor (Beckman coulter).

Instruction and training given to all operators which is reviewed annually.

Existing operators receive annual refresher training.

Arrangements for monitoring effectiveness of control:**Review of the Risk Assessment:**

Date of review		Name of reviewer	
Date of next review		Signature	

Have the control measures been effective in controlling the risk?

Yes	No
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Have there been any changes in the procedure or in the information available which affect the estimated level of risk from the listed substances

Yes	No
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What changes to the control measures are required?

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Declaration by Tenant/Licensee/Technician:

I confirm that I have read this Risk Assessment and that I understand the hazards and risks involved and will follow all of the safety procedures stated. Where PPE has been identified as a control measure, I will ensure that it is worn.

Declaration by Laboratory Manager (LM):

I confirm that the tenant/licensee/technician who has signed below is competent to undertake the work. My counter-signature indicates that I am happy for the work to proceed.

Name (Please print)	Signature	LM Countersignature	Date

Name (Please print)	Signature	LM Countersignature	Date