Risk Assessment Form

Procedure	Use of -80°C Freezers

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 0016

Outline of procedure / activity:

The -80°C Freezers (Eppendorf CryoCube (model F570H) upright) are design to provide precise, ultra-low temperature environments for storage of scientific materials for research purposes. They are designed to provide ultra-temperature sample storage from -50°C to -86°C at 32°C maximum ambient operating temperature. CryoCube freezers feature an automatically heated vent port, which enables the outer door to be easily opened at any time. There are six -80°C Freezers which are located in freezer lab (696.20.26).

All freezers are mounted on heavy-duty castors for ease of movement. Upright freezers have feet that provide both a levelling and locking feature to stop the freezer from rolling once it is in place. The freezer must have a clearance of at least 150 mm on all sides. The freezer should be laced in a shaded area, away from sources of excessive heat for efficient temperature control. For maximum cooling capability, the freezer should be located in an air-conditioned room. The maximum freezer shelf load is 40 kg. The freezers are fitted with internal doors which latch shut, minimizing temperature rise when the outer door is opened.

Operator must be trained in operating -80°C Freezers to guarantee safe daily use. Untrained Personnel are not be allowed to operate the freezers. Users should operate the -80°C Freezers according to instructions in the manual. User must always ensure that power cable is in good condition, no wires exposed.

Operation:

- Before connecting the cryocube freezer to the main/power supply, make sure that the mains/power supply matches the requirements of the equipment.
- Once verification of mains/power supply matches the electrical requirements of the freezer, connect the freezer to the mains/power supply using the mains/power cord provided.
- The **on/off** circuit breaker is located within the lockable panel at the bottom right-hand corner of the upright freezer.
- To remove the lockable panel and turn the circuit and turn the circuit breaker and battery switch on/off:
  - Insert and turn the key provided one quarter turn to the right.
  - Remove the panel.
  - Set the **on/off** circuit breaker and battery switch to the 1 **(ON)** position**.** The temperature display illuminates immediately.

- The equipment is delivered with battery deactivated. The power fail alarm is activated by switching the battery **ON** position.
- After activating the alarm, test its operation by pressing the **ALARM TEST/MUTE** key on the display.
- The audible alarm should sound.
- The **ALARM TEST/MUTE** key also test the LED indicators. All of the LEDs should light up together when the button is pressed.

- Pull downtime to -80°C will dependent on the freezer size and model. The alarm will sound every 30 min until the temperature set point is reached. Use the **ALARM TEST/MUTE** key to mute the alarm during this initial pull-down period.
- The factory-set temperature is -80°C for low alarm set point and the high alarm set point is -70°C.

Vacuum Effect:

- After closing the freezer door, a vacuum may be created. Before the door can be opened again, it may be necessary to wait 1 or 2 minutes for the vacuum to be released by the vent port.
- DO NOT try to force the door open.
- During the release of the vacuum, a slight hissing sound may be heard. The heated vent is designed to keep the port clear of ice.

After a mains/power fail:

- If mains/power is interrupted, the **POWER-FAIL** indicator will illuminate. In addition, the audible alarm will sound and the display will flash at approximately 10-second intervals.
- When the mains/power is restored, both alarm and light will automatically be cancelled.
- If the door open long enough for the internal temperature to rise above the temperature set point, the same effects will be observed as above.
- The door should only be opened when necessary, for a short period of time.

Maintenance:

- The interior panels and shelves are made of stainless steel. May be cleaned with 70% ethanol with a soft, lint-free cloth by the lab technician.
- Air intake grill and filter should not be blocked otherwise may cause serious damage to the cryocube freezer.
- Check that there is no obstruction of the airflow to the freezer by the lab technician.
- Remove the filter from behind the grill by turning the thumbscrews ¼ turn and opening grill downward.
- The air intake grill must be cleaned regularly to keep it free from dust and debris. Under normal condition, clean the grill once every 3 months by the lab technician by vacuuming or with a soft brush the dust from the grill and washing the filter in soapy water and left to air dry before replacing.
- If the area around the freezer is very dusty or dirty, clean the grill and filter monthly.

Safety warning:

- Before connecting the CryoCube freezer to the mains/power supply, make sure that the mains/power supply matches the requirements of the equipment.
- Check the specification plate (located on the side of the freezer) for the electrical requirements.
- Ensure the CryoCube freezer is connected to an earth/grounded socket.
- Do not attempt to lift CryoCube freezer by hand.

- Use mechanical lifting equipment for loading and unloading.
- Do not slam the door with the handle in the closed position.
- Do not use the Cryocube freezers in a hazardous atmosphere or with hazardous materials for which the equipment was not designed.
- Read the entire operating manual before attempting to use the unit.

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 -80°C Freezers	Risk of cold burns from direct contact with cold contents.	All operators should be trained on proper operating procedures before handling the -80°C Freezers. Must wear PPE (lab coat and lab gloves and safety specs) and freezer gloves when loading or unloading the -80°C Freezers.	M	No further action required if the existing control measures are adhere to.	M
Use of -80°C Freezers	Risk of personal injury and equipment damage from flammable components.	Not allowed to store flammable materials. Freezer to be protected from sparks and flames.	L	No further action required if the existing control measures are adhere to.	L
Use of -80°C Freezers	Electrical hazard - Electrical shock – danger of death.	Only switch on the device if the device and power cable are undamaged. The device has been properly installed and there is a preventative maintenance in place. Only trained personal are allowed to use the machine. Freezer is earthed, protective earth connection for the machine is provided using 13A plug	L	No further action required if the existing control measures are adhere to.	L

		fitted to the machine (RCD protected). Make sure it has been PAT tested.			

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.
2. For brief, localised contact with cold material - flush the area with tepid water. (Water is used because of its high heat capacity.) Obtain First Aid assistance.

Arrangements for monitoring effectiveness of control:

Daily inspection of equipment by lab technician.

Annual preventative maintenance carried by external contractor (Eppendorf).

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

Existing operators receive annual refresher training.

Annual pat testing by external contractor.

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

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

What changes to the control measures are required?

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