

Risk Assessment Form

Procedure	Use of Eppendorf Master cycler (Nexus)
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Name(s) of person performing the work	Users (Lab manager & Lab Technician & Tenants & Licensee's)		
Name & position of assessor	Khwaja Islam & Laboratory Manager	Signature	
Date of assessment	06/09/2018	RA Number	BioE 0028

Outline of procedure / activity:

The master cycler (or thermal cycler) is located in Innovation lab 1 (696.10.14) which is used for routine of polymerase chain reaction (PCR) where temperature control of aqueous solutions, suspensions or emulsions in closed micro test tubes for enzymatic reactions. When the heated lid is being heated, the thermos block is actively maintained at a constant temperature. This minimizes non-specific annealing and evaporation of the samples. The cycler can deal with all types of PCR consumables, from low volume all the way up to 0.5ml OCR tubes as well as all common PCR plates.

Parameter:

- 1-20°C (gradient range)
- 30-99°C temp.range (gradient)
- 37-110°C temp range (Lid)
- 4-99°C temp.range (control range)

The instrument will ask for a pin number which will be given to you by the BioEscalator Lab Manager or Lab technician.

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

Operations:

Master cycle is equipped with a flexlid heated lid. The flexlid heated lid automatically adjusts to the height of the used PCR tubes or PCR plates. It can be operated with one hand. No requirement for manual adjustments. The heated lid prevents condensation forming in the upper area of tubing and secures against leaks.

Open the heated lid in one go as follows:

1. Flip the lid handle up over the heated lid and flip the heated lid up at the lid handle as far as it will go.
2. Once the thermoblock is loaded with sample tubes or a PCR plate. Close the lid by holding the

middle of the hands on the heated lid (grip the heated lid at the centre of the lid handle and close it). Continue to move the lid handle further down until it is in a horizontal position. When you close the heated lid, do not place your fingers between the heated lid and the housing. #

3. The force required to move the lid handle into the horizontal position depends on the type of PCR tubes or PCR plate used.
4. The heated lid is now locked.
5. You can start a program run.
6. The administrator PIN is used protect the device software from unwanted access.
7. Logging in as **user**:
8. Press **the next** key. Cursor jumps to the *PIN*: field.
9. Enter your *PIN* via the numerical keys.
10. Press the **OK** soft key to confirm.
11. Creating a User account:
12. In the navigation tree, mark the **Eppendorf** node (at the top).
13. Press the **NEW USER** soft key.
14. The **NEW USER** window appears.
15. Enter the name and PIN of the new user. Re-enter the PIN in the confirmation: field.
16. Press the **OK** soft key to confirm.
17. The new user account is created. A new user node is created in the navigation tree.

Safety precautions:

- Do not operate the device in areas where work is completed with explosive substances.
- Do not use this device to process any explosive or highly reactive substances.
- Do not use this device to process any substances which could create an explosive atmosphere.
- Do not use this device to process any highly flammable liquids.
- The use of accessories and spare parts other than those recommended by Eppendorf may impair the safety, functioning and precession of the device.
- Condensate can form in the device after it has been moved from a cool environment to a warmer environment. Wait 12 hours before connecting the device to the mains/power line.

Potential hazards

Substance or item handled	Associated Hazard (s)	Existing Control Measures	Risk (L/M/H)	Further Action required	Risk (L/M/H)
Hot surfaces on thermoblock, hot plate, reaction vessels and lid, i.e. >50°C	Burns due to hot surfaces if heated lid is open	Wear proper PPE; gown (lab coat and gloves and safety specs). Users will have a risk assessment / SOP in place before work begins. When the cycle has completed wait until the temperature of the heated lid, thermoblock and reaction vessels is below 30°C. Then it's safe to open the lid.	M	No further action required if the existing control measures are adhere to.	M
Use of master cyler – mains connection socket with power switch	Electrical hazard - Electrical shock – danger of death	Only switch on the device if the device and power cable are undamaged. Only trained personal are allowed to use the machine. Master cyler is earthed, protective earth connection for the machine is provided using 13A plug fitted to the machine (RCD protected). Make sure it has been PAT tested. Regular visual checks of power cords for fault, fraying or wear and regular electrical safety check. Any faults reported and repaired before use.	L	No further action required if the existing control measures are adhere to.	L

Use of master cycler – lethal voltages inside the device	Electrical hazard - Electrical shock – danger of death	Ensure that the housing is closed and undamaged. Do not remove housing unless its Eppendorf service engineer. Ensure that no liquid can penetrate into the device.	L	No further action required if the existing control measures are adhere to.	L
Biohazard when tempering with heated lid open	Biohazard-when tempering with an open heated lid, the lids of the reaction vessels can spring open.	Only temper with a closed heated lid if one needs to. Wear proper PPE.	L	No further action required if the existing control measures are adhere to.	L
Biohazard – unsuitable vessels, plates and lids	Biohazard-unsuitable reaction vessels, plates and lids get damage in the cycler and release sample material.	Only use reaction vessels, plates and lids that meet the requirements specified in the operating manual. Do not fill sample material directly into the thermoblock.	L	No further action required if the existing control measures are adhere to.	L
Lifting the master cycler	Risk of injury when lifting and carrying the heavy device (weight is 11kg)	If the device is moved using the lid, the lid may break, causing the device to fall. Only lift the device by holding it at the bottom of the housing. Use both hands to carry the device. Only lift and transport the device with a sufficient number of	L	No further action required if the existing control measures are adhere to.	L



		<p>helpers. Use a transport aid for transporting the device. Do not lift the device using the lid. MHO training is required by personal before lifting and carrying the heavy load.</p>			
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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.

Arrangements for monitoring effectiveness of control:

Daily inspection of equipment by lab technician.

Annual preventative maintenance carried by external contractor.

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
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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 Tenants/Licensees/Technicians:

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