

## Risk Assessment Form

<b>Procedure</b>	Use of Hotplate Stirrer
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<b>Name(s) of person performing the work</b>	Users (Lab manager & Lab Technician & Tenants & Licensee's)		
<b>Name &amp; position of assessor</b>	Khwaja Islam & Laboratory Manager	<b>Signature</b>	
<b>Date of assessment</b>	06/09/2018	<b>RA Number</b>	BioE 0025

### **Outline of procedure / activity:**

The Hotplate stirrer are located in the Innovation lab 1 (696.10.14) and Innovation lab 2 (696.10.22) and is used in the lab for general use and for all those applications that require a precise regulation of the stirring speed and of the heating plate temperature.

#### Consist of:

- Ceramic heating plate – higher temperatures can be obtained compared to the traditional aluminium heating plate and it takes less time to heat the sample.

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

#### Operation:

1. Connect the unit to mains and turn it on using the on-off button.
2. The green led indicates that the instrument is **ON**.
3. Rotate the speed (right stirring speed knob) and temperature (left temperature control knob) knobs completely to the left.
4. Place the flask containing the sample and a suitable magnetic stirrer bar on the stirring plate.
5. Then, set the speed and temperature by turning the dedicated knobs.
6. Start the stirrer function by turning the stirrer knob “stirrer rpm” on the front panel.
7. Speeds of from 50 to 1300 rpm can be selected using the analogical scale around the knob.
8. Temperatures from 5 to 400°C can be selected.

#### Maintenance:

- No routine or extraordinary maintenance is necessary apart from periodically cleaning the unit.

#### Safety precautions:

- When in use leave a safety sign “caution very hot!” to alert the hot surface to other personnel.
- The knobs on the front panel are easily accessible and are well away from the heating plate in order to ensure maximum operator safety as well as safeguarding the electronic components inside the unit.



- Ensure that the electrical cord does not touch the hot plate when the unit is on as the insulation coating may be damaged.
- For safe use of the magnetic stirrer/hotplate;
  1. Never carry the unit with any items on the plate.
  2. Never drop the unit.
  3. Never use insulation materials on the hotplate under the vessel being heated - this may cause the unit to overheat.
- As many fluids reduce their viscosity when heated, ensure that the stirring speed will not become too fast as the temperature increases.

### 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 hotplate stirrer	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. Hotplate are 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 hotplate stirrer	Burns from the hotplate or heated vessel/liquids.	PPE must be worn all the time (lab coat, lab gloves and safety glasses). Spillage must be cleared up immediately and decontaminated in accordance to COSHH assessment. Instrument only to be used by trained personal. Warning sign when in use. Have a designated area of hot works. Avoid touching the hotplate and heated vessels without thermal protective	M	No further action required if the existing control measures are adhere to.	M

		gloves or tongs. If the hotplate was used at a high temperature but has since been turned off, use signage to alert the hot surface to other personnel. Never store the unit away while it is still hot. Never leave a high temperature hotplate unsupervised.			
Use of hotplate stirrer	The splashing of hazardous materials is present while ever these solutions are being used in conjunction with the magnetic stirrer/hotplate. Splashing may be caused by the stirrer being set at too high a speed, causing the solution to spill over the sides, or may occur if the	Always wear gloves and safety glasses when stirring, heating or both. Ensure that the speed of the stirrer is not excessive and make sure that the vessel is not overfilled. To prevent splashing, cover open vessels (such as beakers) with Parafilm. When heating a substance, be sure to monitor it at all times. It is also advisable to use some sort of agitation to prevent the superheating and possible explosion of heated liquids, for example a stirrer or boiling chips. Always read the MSDS/COSHH of a substance before using it.			



	solution begins to boil.				
Use of hotplate stirrer	The risk of exposure to hazardous fumes is present while ever such chemicals are being used in conjunction with the hotplate. This risk may increase as the temperature increases.	Always read the MSDS of a substance before using it. Some chemicals give off hazardous fumes at room temperature and others do so only when heated. All hazardous fume producing chemicals may only be heated in the fume hood.			

**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.

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/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