

## Risk Assessment Form

<b>Procedure</b>	Use of Microbiological Safety Cabinets (MSC)
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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>	01/10/2018	<b>RA Number</b>	BioE 0011

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

Microbiological Safety Cabinets (MSC) (Labogene Scanlaf Mars 1200) are designed to provide protection to the operator, the environment, and the processed product against particle and microbiological contamination for cell/tissue culture. The product protection is achieved by a downward laminar airflow (filtered) and an operator and environment protection inward airflow through the front window opening. The default work opening is 200 mm.

Operator must be trained in operating MSCs to guarantee safe daily use. Untrained Personnel are not be allowed to operate the MSCs. Users should operate the Biosafety cabinets according to instructions in the manual. There are three MCSs which are located in TC lab (696.10.26).

#### Operation of MSC:

- All microbiological safety cabinets in the laboratory are operated in the same way.
- Press & hold button 7 to move the window upwards.
- Press & hold the green LED button 1 to select the fan ON/OFF at normal velocity. The green LED light indicates that the fan is running at normal velocity, and that conditions are safe.
- Before commencing work all accessible surfaces in the cabinet should be wiped down with 70% ethanol.
- All equipment used inside the cabinet should also be sprayed and wiped with 70% ethanol before being placed in the cabinet.
- Work in the cabinet should be performed in the centre of the workspace avoiding blocking any of the air vents with equipment.
- Loose material such as paper, tissue, etc. should be prevented from being sucked through the air vents and into the HEPA filters as this may compromise the air-flow.
- At the end of a work session all items must be removed from the cabinet and the surfaces wiped down with 70% ethanol; this includes underneath the metal work tray where liquid may have dripped through the air vent and the glass viewing panel (both inside and outside).
- Any spillages that occur while working in a cabinet should be disinfected immediately according to the disinfection guidelines.
- Following a spillage the surfaces should be disinfected immediately according to the following

guidelines:

- i) Sprinkle powder Virkon onto the spill to cover it completely;
  - ii) Wait for the Virkon to absorb the spill; mop up with paper towels and place in the clinical waste bin;
  - iii) Clean the surface with a 1% solution of Virkon.
- To switch the cabinet off press & hold the green LED button 1. Wait for the light to switch off and the air-flow indicator.
  - The blue LED button 2 to select the fan ON/OFF at reduced velocity. Can be adjusted to any level desired for individual requirements.
  - The red LED button 3 to silence the acoustic alarm.
  - The blue LED button 4 for normal light ON/OFF.
  - The yellow LED button 5 is if UV light is required for decontamination or activation of the table top.
  - The blue LED button 6 can be connected to an internal plug in the chamber for remote on/off of the plug/gas resettable valve.
  - Button 7: window open upwards movement.
  - Button 0: window close downwards movement.
  - Button 9 & 8: only for programming/navigation.

Safety precaution:

- Safety cabinets must not be used for Group 4 pathogens.
- Safety cabinets are not suitable for HIGH-RISK biological agents (include all aetiology agents designed by class 4 by CDC, and oncogenic viruses).
- Never operate the safety cabinets if the fan compartment cover is removed (as the safety cabinet will give no protection of the operator or of the environment).
- Safety cabinet will not provide any protection for operator or environment against harmful gases or vapours.
- Always keep hands and arms away from the work chamber when activating the sliding window.
- The airspeed monitoring system needs approximately 5 minutes to warm up and stabilise after the fan has been switched on.
- Whenever transportation of the cabinet is needed, precaution should be taken to prevent it from overturning due to the high-located mass centre.
- In order to prevent damage to the cabinet it must be handled as fragile goods.
- The provision of natural gas to the biosafety cabinets is not recommended as open flames in biosafety cabinet create turbulences, disrupt airflow patterns and can damage the laminator and the heap filter.
- It is not recommended to move Biosafety cabinets after installation as this can result in safety issues, which can only be detected by re-testing of critical functions and properties.
- Correct assembly and installation is essential for proper start-up and operation of the biosafety cabinets.
- The installations site for the unit must be draught-free and should be selected so that frequent passing of people in front of the work opening is avoided.

### 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 Ultra Violet Light	UV radiation – damage to eyes and skin.	All operators should be trained on proper operating procedures before operating the incubator. Wear PPE (lab coat and gloves and safety specs). UV radiation is not recommended for use by manufacturer. UV safety: UV light will not turn on if the front window is open. The closed windows blocks out the UV rays. Opening the window will cause the UV light to turn off. If the light is turned on in the cabinet, the UV light will turn of automatically. While the UV light is on, the front windows must be closed.	L	No further action required if the existing control measures are adhere to.	L
Working with cell cultures, bacteria or viruses	Biohazard risk	Wear proper PPE; gown (lab coat and gloves and safety specs). Users will have a risk assessment / SOP in place before work begins.	L	No further action required if the existing control measures are adhere to.	L
70% Ethanol - Wiping out the biosafety cabinet and spraying/wiping objects going into the biosafety cabinet.	Highly flammable	Use spray bottle and limit amount of ethanol used to avoid creating an explosive atmosphere. Do not use Bunsen burners or other naked flames in	M	No further action required if the existing control measures are adhere to.	M

		the biosafety cabinet. Refer to COSHH assessment of Ethanol 0005.			
Use of MSCs	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. MSCs 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. The chamber must not become wet during operation or maintenance.	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.

**Arrangements for monitoring effectiveness of control:**

Daily inspection of equipment by lab technician.

Annual preventative maintenance carried by external contractor (EVS).

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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