

## Risk Assessment Form

<b>Procedure</b>	Use of Ph Meter
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<b>Name(s) of person performing the work</b>	Users (Lab manager & Lab Technician & Tenants)		
<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 0014

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

The five easy Ph meter F20 are bench top pH meters located in chemistry lab (696.10.23) and Innovation lab 1 (696.10.14). It consists of the pH electrode and its adjustable stand, attached to the meter with a digital display. The instrument provide high quality pH/mV measurements with the simple click of a button and is ideal for wide range of general aqueous samples.

#### Specifications:

Measuring range: 0.00...14.00 pH and -2000...2000 mV.

Calibration: max. 3 point and linear.

#### Ph electrode:

Is a 3-in-1 plastic Mettler Toledo LE438 electrode with integrated temperature sensor measures pH, no tris buffer, BNC + RCA (Cinch) plug connection, 1m cable length, suitable for general purpose applications and field samples. When not in use the Ph electrode is stored in Ph electrode solution (KCL). The electrode should never be left dry and uncovered otherwise it will be damaged. Always keep ph electrode in storage solution between measurements and when not in use.

Operator must be trained in Ph Meter to guarantee safe daily use. Untrained Personnel are not be allowed to operate the Ph Meter. Users should operate the Ph Meter according to instructions in the manual.

#### Switching the instrument on and off:

1. Press and release to switch on the instrument.
  - All segmented digital numbers and icons are displayed for 2 seconds. After that the installed software version appears (e.g. 1.00) and the instrument is ready for use.
2. Press Exit button for 3 seconds and release to switch off the instrument.

#### Performing a 1-point calibration:

1. Place the electrode in a calibration buffer.
2. Press Cal.
  - During measurement the pH value based on the previous calibration is shown. Depending on the endpoint format, the instrument stops measuring when the signal is stable (auto endpoint)

- or after pressing Read (manual endpoint).
- At endpoint, disappears from the display and the pH value of the recognized buffer at measured temperature is shown.
3. If you do not want to proceed with the 2-point calibration, press Read to finish the 1-point calibration.
- or- If you want to reject the 1-point calibration press Exit.
  - or- Proceed with next calibration point and go to Performing a 2-point calibration [ $> 20$ ].

#### Performing a 2-point calibration [ $> 20$ ]:

1. Rinse the electrode with deionized water.
2. Place the electrode in the next calibration buffer and press Cal.
  - During measurement the pH value based on the previous calibration is shown. Depending on the endpoint format, the instrument stops measuring when the signal is stable (auto endpoint) or after pressing Read (manual endpoint). Slope and offset are then calculated.
  - At endpoint, disappears from the display and the pH value of the recognized buffer at measured temperature is shown.
3. If you do not want to proceed with a 3-point calibration press Read to finish and save the 2-point calibration.
  - -or- if you want to reject the 2-point calibration, press Exit.
  - -or- if you want to proceed with the next calibration point go to Performing a 3-point calibration [ $> 20$ ].

#### Performing a 3-point calibration [ $> 20$ ]:

1. Perform the same steps as described in performing a 2-point calibration [ $> 20$ ].
2. Repeat steps 1, 2 and 3 of performing a 2-point calibration [ $> 20$ ] for the third calibration point.

#### Note:

1. With the 1-point calibration only the offset is adjusted. If the sensor was previously calibrated with multipoint calibration the previously stored slope will remain. Otherwise the theoretical slope (100 %) will be used.
2. With the 2-point calibration, both slope and offset are updated and shown on the right side of the display.
3. With the 3-point calibration, both slope and offset are updated and shown on the right side of the display. The slope and offset values are calculated using least square method through the three calibration points (linear calibration). The FP20 offers the option of segmented calibration, where slope and offset are calculated individually for each pair of adjacent buffers. Segmented calibration is only meaningful for calibration with 3 or more points.

#### Safety precautions:

- It is compulsory to wear protective clothing in the laboratory when working with hazardous or toxic substances:
  - A lab coat should be worn.
  - Suitable eye protection such as goggles should be worn.
  - Use appropriate gloves when handling chemicals or hazardous substances, checking their integrity before use.
- All relevant safety measures are to be observed when working with chemicals.
- Any spills should be wiped off immediately.

### 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 Ph Meter	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. Incubator 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.	L	No further action required if the existing control measures are adhere to.	L
Measuring ph of chemicals	Hazard associated with chemical – refer to COSHH assessment	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	L	No further action required if the existing control measures are adhere to.	L
Ph electrode storage solution	Irritant Harmful - KCL	PPE must be worn all the time (lab coat, lab gloves and safety glasses). Refer to COSHH assessment 0004.	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.

**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.

**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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