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Title:	Calcium Selective Electrode for Hanna PH211 Microprocessor pH Meter
Version:	v2
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SOP History		
Number	Date	Reason for Change
v1	09/07/2014	Original
	09/07/2019	Five Year Review

1.0 Purpose –

The purpose of this SOP is to outline the principles for the routine use and maintenance of the Hanna Calcium Selective Electrode in Laboratory 248 at the St. Andrews School of Medicine (SASoM).

2.0 Scope –

This SOP applies to routine use and maintenance of the Hanna Calcium Selective Electrode within the SASoM.

3.0 Responsibilities –

It is the responsibility of all users of the Hanna Calcium Selective Electrode within the SASoM to comply with this SOP.

4.0 Procedure –

1. Carefully remove the standard pH probe from the back of the pH Meter.
2. Take the Ca selective electrode and screw the sensor part into main body of the probe, then plug into the pH meter (using the same socket which is used for the pH probe).
3. Remove the reference electrode from the storing solution and similarly plug into the pH meter (this socket is marked with 'Ref').
4. Wash both probes with dH₂O, then dab off excess using a small white tissue.



Equipment Operation Procedure

5. Soak both electrodes in a sample of the solution to be tested for around an hour to equilibrate. The Ca selective electrode sensor is at the bottom of the probe and so only needs to be in the solution as deep as the end of the grey module. The reference electrode needs to be slightly deeper to ensure that the bulb and thin shaft are submerged. It is also essential to ensure that the two electrodes don't touch each other or the wall of the container.
6. When taking a reading the pH meter must be set to show values in mV. This is done by pressing the 'range' button on the right hand side of the pH meter.
7. Three standard solutions of known Ca^{2+} concentration must be made to create a standard curve from which the unknown concentration can be determined. Between each reading the electrode must be washed in dH_2O .
8. Stirring the solution whilst taking a reading is required to ensure that there is no drift of the measurement. This should be no greater than 1Hz as any faster causes an excessively negative result.
9. The Ca electrode should be carefully wiped dry, using tissue, when finished. The Reference electrode should be submerged back into storing solution then both electrodes should be returned to the box.
10. The original pH probe should now be re-fitted to the pH meter ready for the next user.

5.0 Personal protection –

Howie coat and gloves must be worn at all times.

6.0 Training –

All users have to be trained before using the Instrument by a designated person.

7.0 Related documents –

7.1 This SOP should be read in conjunction with SASoM-EQUIP-034 (Use of the Hanna PH211 Microprocessor pH Meter).



8.0 Approval and sign off –

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Position: Principal Investigator

Signature: Date:

Management Approval:

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Confidential

