

Frederick National Laboratory for Cancer Research <small>sponsored by the National Cancer Institute</small>	HPV Serology Laboratory Standard Operating Procedure	
Use and Maintenance of a pH Meter		
Document ID: HSL_EQ_014	Version 1.0	Page 1 of 6

Released by/Date Effective:

Author Name	Title	Signature/Date

Approver Name	Title	Signature/Date

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1. PURPOSE

- 1.1. The purpose of this procedure is to describe the proper use, maintenance and handling of the pH meter.

2. SCOPE

- 2.1. This procedure applies to the HPV Serology Laboratory located at the Advanced Technology Research Facility, Room C2007.

3. REFERENCES

- 3.1. Mettler Toledo SevenCompact pH meter S220 user Manual
- 3.2. HSL_EQ_014.01: pH Meter Use and Maintenance Form
- 3.3. HSL_GL_001: Waste Disposal at the Advanced Technology Research Facility
- 3.4. HSL_GL_002: Equipment Qualification and Calibration in the HPV Serology Laboratory
- 3.5. HSL_GL_003: Good Documentation Practices for the HPV Serology Laboratory
- 3.6. HSL_GL_006: Reagent Preparation for the HPV Serology Laboratory
- 3.7. HSL_GL_007: Reagent and Chemical Expiry in the HPV Serology Laboratory
- 3.8. HSL_GL_008: Laboratory Flow and Gowning Procedures for the HPV Serology Laboratory
- 3.9. HSL_GL_009: HPV Serology Laboratory BSL-2 Procedures
- 3.10. HSL_GL_010: Control and Request of Documents in the HPV Serology Laboratory

4. RESPONSIBILITIES

- 4.1. The Research Associate, hereafter referred to as analyst, is responsible for reviewing and following this procedure.
- 4.2. The Scientific Manager or designee is responsible for training personnel in this procedure and reviewing associated documentation.
- 4.3. The Quality Assurance Specialist is responsible for quality oversight and approval of this procedure.

5. REAGENTS, CHEMICALS AND EQUIPMENT

- 5.1. Mettler Toledo SevenCompact pH meter

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- 5.2. Mettler Toledo InLab Solids Pro-ISM Electrode (Mettler Toledo, Cat # 51344155)
- 5.3. Calibration buffers (VWR, Cat # 97007-790 or equivalent)
- 5.4. Electrolyte Solution (VWR, Cat # 97007-764 or equivalent)
- 5.5. Type II Water
- 5.6. Kimwipes (VWR, Cat # 21905-026 or equivalent)

6. HEALTH AND SAFETY CONSIDERATIONS

- 6.1. Proper safety precautions should be taken while working in a laboratory setting. This includes, but is not limited to, proper protective equipment such as lab coats, safety glasses, closed-toe shoes, and non-latex gloves.
- 6.2. Refer to the respective SDS when working with any chemicals.
- 6.3. Refer to "HSL_GL_001: Waste Disposal at the Advanced Technology Research Facility" regarding waste disposal processes at the ATRF.

7. DEFINITIONS

Term	Definition
ATRF	Advanced Technology Research Facility
HPV	Human Papillomavirus
HSL	HPV Serology Laboratory
SDS	Safety Data Sheets
SOP	Standard Operating Procedure
Type II water	Pure/Analytical Grade, used for standard applications

8. OPERATION

Note: pH meter **MUST** be standardized prior to use or on the day of use, and use three (3) calibration buffers (pH 4, 7, 10).

- 8.1. Standardization
 - 8.1.1. Place the electrode in pH 4.0 calibration buffer/standard and press **CAL**.
 **Cal 1** appears on the display. The meter endpoints according to the preselected endpoint mode after the signal has stabilized or after pressing READ. The relevant buffer value is shown on the display.
 - 8.1.2. Rinse the electrode with Type II water.
 - 8.1.3. Place the electrode in pH 7.0 calibration buffer and press **CAL**.
 **Cal 2** appears on the display.
 - 8.1.4. Rinse the electrode with Type II water.

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8.1.5. Place the electrode in pH 10.0 calibration buffer and press **CAL**.

 **Cal 3** appears on the display.

8.1.6. Rinse the electrode with Type II water.

8.1.7. Press **Save** to keep the calibration or **EXIT** to reject the calibration.

8.1.8. Regardless if the calibration passes or fails, print the calibration by pushing the print icon.

8.1.9. Record calibration information on HSL_EQ_014.01: pH Meter Use and Maintenance Form. Attach the calibration print out on the back of HSL_EQ_014.01: pH Meter Use and Maintenance Form, using proper GDP guidelines.

8.2. Sample measurements

Note: The integrated temperature probe measures pH with temperature compensation.

8.2.1. Rinse the electrode with Type II water.

8.2.2. Wipe electrode dry with kimwipe, being careful not to touch the wipe to the bottom of the electrode.

8.2.3. Place the sensor in the sample and press **READ** to start a measurement.

8.2.4. The display shows the readings of the sample. The endpoint format blinks, indicating a measurement is in progress.

8.2.5. As soon as the measurement is stable according to the selected stability criterion, the **Stability** icon appears.

8.2.6. If the “**manual endpoint**” format is selected, press **READ** to manually stop the measurement.

8.2.7. If the “**timed endpoint**” format is selected, the measurement stops after the preset time.

8.2.8. Press the print icon, and attach the print out to the applicable logbook.

8.2.9. Record all use on HSL_EQ_014.01: pH Meter Use and Maintenance Form.

9. MAINTENANCE

9.1. Always rinse the pH electrode with Type II water in between measurements.

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- 9.2. Make sure the pH electrode is always kept filled with the appropriate filling solution if applicable and stored in Electrolyte Solution when not in use.
- 9.3. Replace the electrode when the calibration slope is less than 93%.
- 9.4. Record all maintenance on HSL_EQ_014.01: pH Meter Use and Maintenance Form.

10. ATTACHMENTS

Not applicable.

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11. REVISION HISTORY

Revision Start Date	Version #	Changes	Reasons
15Mar17	New	Create new SOP for Use and Maintenance of a pH meter	Currently no SOP

pH Meter Use and Maintenance Form

Form ID: HSL_EQ_014.01 Associated SOP: HSL_EQ_014	Version 1.0	Page 1 of 1
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Equipment ID:	Calibration Date:	Calibration Due Date:
Electrode S/N:	Expiration Date:	

Date	Initials	Calibration	Activity Performed
		<input type="checkbox"/> N/A <input type="checkbox"/> pH 4.0, 7.0, 10.0	<input type="checkbox"/> Calibration (Slope: _____) <input type="checkbox"/> Use & pH of reagent <input type="checkbox"/> Other:
		<input type="checkbox"/> N/A <input type="checkbox"/> pH 4.0, 7.0, 10.0	<input type="checkbox"/> Calibration (Slope: _____) <input type="checkbox"/> Use & pH of reagent <input type="checkbox"/> Other:
		<input type="checkbox"/> N/A <input type="checkbox"/> pH 4.0, 7.0, 10.0	<input type="checkbox"/> Calibration (Slope: _____) <input type="checkbox"/> Use & pH of reagent <input type="checkbox"/> Other:
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Comments:

N/A

Reviewed By/ Date:	
QA Review By/ Date:	