

*Approved by Director: Dr. Guy Vallaro***A. PURPOSE:**

To maintain and standardize the pH meter.

**B. RESPONSIBILITY:**

Forensic Science Examiner 1 and 2 in the Forensic Biology Section. Ordering information is maintained in a log book in the Forensic Biology Section. For additional information, refer to the Equipment Inventory Appendix.

**C. PROCEDURE:**

1. The pH meter should be standardized with the appropriate pH standards quarterly and before each use. The electrode should be cleaned quarterly.
2. Standardization
  - a. Not to be used with Tris, proteins, sulfides or anything containing silver.
  - b. Uncover fill hole.
  - c. Turn power on.
  - d. Rinse electrode with dH<sub>2</sub>O, blot with kimwipe (don't rub or wipe).
  - e. Rinse electrode with pH 7 buffer.
  - f. Place electrode into pH 7 buffer.
  - g. Wait until "pH" icon stops flashing and press Measure, then press Calibrate, ("cal 1" will appear).
  - h. Wait until "pH" icon stops flashing and press Calibrate ("cal 2" will appear).
  - i. Rinse electrode with dH<sub>2</sub>O, blot.
  - j. Rinse electrode with pH 4 buffer (use pH 10 if checking higher pH).
  - k. Place electrode into pH 4.
- C. 2. 1. Wait until "pH" icon stops flashing and press Measure, calculated slope will be displayed (acceptable slope range 92%-102%).

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- m. Date, initials and slope range should be recorded in the pH Meter Log Sheet.
- n. If the calculated slope is out of the acceptable range (92%-102%), repeat the standardization. If the calculated slope continues to be unacceptable, remove from service until the problem is corrected and record in the pH Meter Log Sheet.

3. Electrode cleaning

- a. Soak for 15 minutes in a 1:10 dilution of bleach. The solution should be stirred at a moderate rate.
  - b. Drain the reference chamber and refill with fresh filling solution.
  - c. Record the date and initials on the pH Meter Log Sheet.
- 4. Maintain level of filling solution inside the electrode just below the fill hole as needed.
  - 5. Maintain level of storage solution inside protective cap on end of electrode as needed.
  - 6. Securely cover fill hole with attached plug to prevent evaporation when not in use.
  - 7. Replace the electrode according to the manufacturer's expiration date or sooner if necessary.
  - 8. The pH standards, filling solution and storage solution are stored in a designated cabinet at room temperature. Replace as needed or according to the manufacturer's expiration date.
  - 9. All equipment that requires service by an outside vendor will be standardized before it is returned to service.

**D. REFERENCES:**

- 1. Thermo Electron Corporation. Users Guide Refillable pH Electrode.
- 2. Thermo Electron Corporation. Orion Star Series Meter User's Guide.