

Document Title: Standardization of pH Meter QC

Controlled: Yes, with red stamp present

Controlled By: Quality Manager

Prepared By: _____ Date: _____

Approved By: _____ Date: _____

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 dH₂O, 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 dH₂O, 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%).
 - 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.