

Document Title: Calibration 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 calibrate 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 calibrated with the appropriate pH standards quarterly. The electrode should be cleaned quarterly.
2. Calibration
 - a. Not necessary before use unless pH needed is between 7&10.
 - b. Not to be used with Tris, proteins, sulfides or anything containing silver.
 - c. Uncover fill hole.
 - d. Soak electrode for one (1) hour in storage solution.
 - e. Turn power on.
 - f. Rinse electrode with dH₂O, blot with kimwipe (don't rub or wipe).
 - g. Rinse electrode with pH 7 buffer.
 - h. Place electrode into pH 7 buffer.
 - i. Wait until "pH" icon stops flashing and press Measure, then press Calibrate, ("cal 1" will appear).
 - j. Wait until "pH" icon stops flashing and press Calibrate ("cal 2" will appear).
 - k. Rinse electrode with dH₂O, blot.

- C. 2. 1. Rinse electrode with pH 4 buffer (use pH 10 if checking higher pH).
- m. Place electrode into pH 4.
- n. Wait until “pH” icon stops flashing and press Measure, calculated slope will be displayed (acceptable slope range 92%-102%).
- o. Date, initials and slope range should be recorded in the appropriate Equipment Log Sheet.
- p. If the calculated slope is out of the acceptable range (92%-102%), repeat the calibration. If the calculated slope continues to be unacceptable, remove from service until the problem is corrected and record in the appropriate Equipment 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 appropriate Equipment Log Sheet.
- 4. All equipment that requires service by an outside vendor will be validated/calibrated before it is returned to service.
 - 5. Maintain level of filling solution inside the electrode just below the fill hole as needed.
 - 6. Maintain level of storage solution inside protective cap on end of electrode as needed.
 - 7. Securely cover fill hole with attached plug to prevent evaporation when not in use.
 - 8. Replace the electrode according to the manufacturer’s expiration date or sooner if necessary.
 - 9. 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.

D. REFERENCES:

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