

**STANDARDIZATION OF pH METER****24.1 PURPOSE**

To maintain and standardize the pH meter.

**24.2 RESPONSIBILITY**

Forensic Science Examiners (however titled) in the Forensic Biology Unit. Ordering information is maintained in a log book in the Forensic Biology Unit. For additional information, refer to the Equipment Inventory located in Appendix 3.

**24.3 SAFETY**

Use appropriate measures for the proper handling of bleach according to GL-2 (Safety Manual) and the Safety Data Sheets.

**24.4 PROCEDURE****24.4.1: General Information**

- A. The pH meter should be standardized with the appropriate pH standards quarterly and before each use. The electrode should be cleaned quarterly.
- B. Maintain level of filling solution inside the electrode just below the fill hole as needed.
- C. Maintain level of storage solution inside protective cap on end of electrode as needed.
- D. Securely cover fill hole with attached plug to prevent evaporation when not in use.
- E. Replace the electrode according to the manufacturer's expiration date or sooner if necessary.
- F. The pH standards, filling solution and storage solution are stored in a designated cabinet at room temperature. Discard/replace as needed according to the manufacturer's expiration date or according to 21.4.3.E in FB SOP-21 (General Chemical and Reagent QC).
- G. If the pH meter requires service by an outside vendor it will be standardized before it is returned to service.

**24.4.2: Standardization**

- A. Not to be used with Tris, proteins, sulfides or any solution 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 buffer (use pH 10 if checking higher pH).
- L. 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 on the pH Meter Log Sheet.

**24.4.3: 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.

**24.5 REFERENCES**

- A. Thermo Electron Corporation. Users Guide Refillable pH Electrode.
- B. Thermo Electron Corporation. Orion Star Series Meter User’s Guide.
- C. GL-2 (Safety Manual)
- D. Safety Data Sheets