SOP: SP031

Operation of N$_2$ bath meter

Materials:
1. N2/Air bath
2. 70% ethanol in spray bottle
3. Kim wipe
4. Sample to be dried
5. Appropriate acid or base to adjust pH
6. pH 4, 7, 10 calibration buffers (Beckman 582517, 582521 and, 582525 respectively)
7. ddH$_2$0 water bottle
8. Discard beaker
9. 3M KCl probe storage buffer (Corning 47706)
10. 3M KCl probe filling buffer (Corning 47706) (note 1)

Protocol:
1. _____ Select two appropriate calibration buffers to bracket expected sample pH.

2. _____ Thoroughly rinse probe with ddH$_2$O, place in pH 7 calibration buffer and press CAL.

3. _____ The pH meter will automatically endpoint when the reading is stable and the appropriate buffer symbol will appear on the display.

4. _____ Thoroughly rinse probe with ddH$_2$O, place in pH 4 (or 10) calibration buffer and press CAL.

5. _____ The pH meter will automatically endpoint when the reading is stable and the appropriate buffer symbol will appear on the display.

6. _____ The pH meter will briefly display the slope value of the calibration. which should be greater than 95%. If the slope is less, the calibrations buffers may need to be changed.

7. _____ Thoroughly rinse probe with ddH$_2$O and place in pH 7 calibration buffer and press READ to confirm calibration (the decimal point will flash whenever the electrode is reading).

8. _____ When the reading is stable press READ again to freeze the display.

9. _____ Thoroughly rinse probe with ddH$_2$O and place in stirring sample to be analyzed and press READ.

10. _____ When the reading is stable press READ again to freeze the display.

11. _____ Adjust sample pH to desired point with appropriate acids or bases press READ when the decimal point stops flashing to freeze the display.

12. _____ Thoroughly rinse probe with ddH$_2$O and place in probe storage buffer (note 3).

Notes:
1. Do not allow fill solution to run dry. Add fill solution whenever the level falls more than 25 mm below fill hole. Replace fill solution at least bimonthly.
2. The slope value should be greater than 95%. If the slope is less, the calibrations buffers may need to be replaced.
3. pH probe must be stored submerged in storage buffer when not in use.