SOP: VWR SympHony B10P pH Meter

Purpose: Determine the pH of a chemical solution

Location: BHE B8 (main area)

Required PPE: Flame-resistant lab coat; nitrile gloves; safety goggles; long pants; closed toe shoes

Protocol for Use:

1. To turn on the instrument, click the power button on the bottom. After about 10 seconds of initialization, the main screen will show up with various information and options, including a clear indicator to recalibrate the system (**Figure 1**).

Figure 1. *Left*: the pH meter is composed of the main device and a pH probe that is immersed in storage solution. *Right*: the main screen after the instrument has been turned on.

2. In order to recalibrate the system, it needs to be tested with three reference buffers with defined pH values (red: 4.00, yellow: 7.00, blue: 10.00).
    a. Please use the reference buffers in the 50mL conical tubes. These are good to reuse for several recalibrations, so do not pour new solutions into new tubes. Ask the lab manager if there are any questions.

3. To start the recalibration, click on “calibrate” and it will ask for the first reference buffer. Remove the pH probe from the storage solution, mount onto the adjustable stand, and clean thoroughly with Millipore water (squeeze bottle). After rinsing with water, carefully dry the residual water on the probe with a Kimwipe, place into the red solution, and click “read”.
    a. Use the waste conical tubes to collect the water during cleaning. This can be done by placing the tube directly below the probe and carefully spraying Millipore water around the probe. The water should fall directly into the waste container.

4. Once the pH meter starts the calibration, it could take anywhere from 10 seconds to about 45 seconds for the system to detect the appropriate pH value of the reference buffer. Once a sound is made and the “stable” icon displays, then the first round of calibration is complete and will automatically transition to the second round.
    a. Note: the fairly high pH value shown during calibration is normal, so don’t worry. The final number is what matters.
    b. The device provides values that are $\pm$ 0.01 of the defined pH, which is due to the intrinsic sensitivity of the system. For example, during calibration, if a red solution outputs 3.99, 4.00, or 4.01, all are acceptable.

5. Before proceeding to the second round of calibration, remove the pH probe from the red solution and clean thoroughly with Millipore water. Place the probe into the yellow solution and repeat step 4. Likewise, follow the same procedure for the third and final round of calibration with the blue solution.

6. After the three rounds of calibration are over, the pH meter is ready to be used. The main screen will display all the same information without the “recalibration” warning. Place the pH probe in the desired solution and click “read”.
    a. Before and after each subsequent reading, make sure to clean thoroughly with Millipore water.
    b. When the reading is made for the solution of unknown pH, the value will display without automatically transitioning. The user can click “read” to proceed with another reading or “exit” to leave the process. The example below was with the blue solution.

7. Once all the measurements have been made and recorded, turn off the pH meter by clicking the power button. Then clean up any spills with a Kimwipe, dump the waste into the sink, and place the pH probe back into the storage solution after a final rinse with Millipore water.
    a. Note: if the storage solution does not completely cover the pH probe, please let the lab manager or TA know.

Maintenance Schedule:

With each use: clean any spilled liquid with a Kimwipe and ensure that there is enough storage solution to cover the entire pH probe.

Contact Information:

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