

Drug Chemistry Section
Drug Chemistry Procedure Manual
Effective Date: September 1, 1996

Name of Procedure:

Toxicology
pH Meter

Suggested Uses:

The pH meter is used to determine the pH of solutions.

Apparatus needed to perform procedure:

Model 10 pH/mV Meter
Electrode capable of performing pH determinations
Buffer solutions
Eye Protection
Beakers
Wash bottle
Thermometer

Calibration of Instrument:

1. Set the **function** selector to the pH position.
2. Set the **slope** control to 100%.
3. Obtain two buffer solutions with values that bracket the desired measuring range (e.g., pH 4.0 and pH 7.0 for samples that fall between pH 4 and 7.)
4. Place a beaker containing the buffer nearest in value to pH 7 in position and immerse the electrode and thermometer into the solution.
5. Allow approximately two minutes for the thermometer to equilibrate, then set the **temperature control** to the corresponding temperature.
6. Adjust the standardize control until display indicates exact buffer value.
7. Remove the electrode and thermometer from the buffer solution.
8. Rinse the electrode and thermometer with deionized water.

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Calibration of Instrument (continued):

9. Place a beaker containing the second buffer in position, and immerse the electrode into the solution.
10. Adjust the **slope control** until the display indicates the exact buffer value.
11. Remove the electrode from the buffer and rinse with distilled water.
12. **Do not change** the positions of the **standardize** or **slope controls** until the pH meter is calibrated again.

Application of Procedure on Solutions:

1. Insure that the pH meter has been calibrated as described above.
2. Set the function selector to **pH position**.
3. Immerse the electrode and thermometer into the sample solution.
4. Wait until the electrode, thermometer and sample solutions reach thermal equilibrium (approximately 2 minutes).
5. Adjust the **temperature control** to agree with the indicated temperature of the sample solution.
6. Read the pH of the sample from the display and record value.
7. Remove the electrode and thermometer from the solution.
8. Rinse the electrode and thermometer with deionized water before proceeding with the next measurement.

Safety Concerns:

Always wear eye protection when handling buffer solutions.

Literature Reference:

Model 10 pH/mV Meter Operating Instructions; Fisher Scientific, REV. E.