QCP9

pH METER QUALITY CONTROL

1.0 PURPOSE

The purpose of this procedure is to describe the provide the steps for operational check and quality control of a pH meter.

2.0 RESPONSIBILITIES

The Laboratory Manager or designee is responsible for assuring that this procedure is implemented.

Laboratory staff is responsible for following this procedure.

3.0 PROCEDURE

3.1 Equipment

Orion pH meter model 520A or equivalent

3.2 Reagents

3.2.1 Buffer solution, pH 2.60: Add 35.4 mL 0.1 M HCl to 50 mL 0.1 M Potassium Hydrogenphthalate (KHF) and dilute to 100 mL with water in a volumetric flask.

3.2.2 Buffer solution, pH 2.80: Add 28.9 mL 0.1 M HCl to 50 mL 0.1 M KHF and dilute to 100 mL with water in a volumetric flask.

3.2.3 Buffer solution, pH 3.00: Add 22.3 mL 0.1 M HCl to 50 mL 0.1 M KHF and dilute to 100 mL with water in a volumetric flask.

3.2.4 Buffer solution, pH 4.0: Fisher Scientific or equivalent.

3.2.5 Buffer solution, pH 7.0: Fisher Scientific or equivalent.

3.2.6 Buffer solution, pH 10.0: Fisher Scientific or equivalent.

3.2.7 Hydrochloric acid, concentrated 12 M, reagent grade.

3.2.8 Hydrochloric acid, 1 M: Add 63 mL concentrated HCl to 800 mL water and dilute to 1 L with water.

3.2.9 Hydrochloric acid, 0.1 M: Add 100 mL 1 M HCl to 800 mL water and dilute to 1 L with water.

3.2.10 Potassium Hydrogenphthalate (KHF) solution, 0.1 M:

3.3 Calibration for Reagent pH

3.3.1 Th pH meter must be calibrated before measuring a pH that is of a critical nature for a sample and/or a procedure.

3.3.2 Press the Mode key until pH is displayed.

3.3.3 Select the range of buffers needed for the pH measurement. For the DTPA reagent used in AP3 for Am/Ln separations, use the 2.60, 2.80, and 3.00 buffers. For other pH measurements, use the 4, 7, and 10 buffers.

3.3.4 Rinse the electrode with water and place it in the first buffer.

3.3.5 Press the Calibrate key. The date and time of last calibration will be displayed.

3.3.6 Press 3 then "Yes" to select a three buffer calibration.

3.3.7 When "Buffer #1" is displayed, enter the value of the buffer being used and press "Yes".

3.3.8 Remove the electrode from the buffer and rinse with water.

3.3.9 Insert the electrode into the second buffer. When "Buffer #2" is displayed, enter the value of the buffer being used and press "Yes".

3.3.10 Remove the electrode and rinse with water.

3.3.11 Insert the electrode into the third buffer. When "Buffer #3" is displayed, enter the value of the buffer being used and press "Yes". The slope is calculated and shown as a percentage. The meter automatically proceeds into the "Measure" mode.

3.3.12 Rinse the electrode and store in the electrode storage solution.

4.0 REVISION HISTORY

Revision Number	Date	Description of Change
0	1/07/04	Creation of Method