pH TITRATION OVERVIEW

A dedicated training session is required for pH Titration measurements.

Usage Instructions

1) Turn the titrator unit On.

2) Calibrate pH probe: from top menu of Measurement Window, select Titrator → Setup and Diagnostics → Calibrate pH Probe. Follow the instructions to calibrate the probe using the buffer solutions provided at pH 4, 7, and 10. If any of the options are greyed out, be sure the Titrator unit is properly turned on; the Measurement Window may need to be closed and re-opened to connect to the titrator.

3) Once the probe is calibrated, gently insert the probe in through the hole in the top of the titrator unit.

4) Confirm the pumps are primed by selecting Titrator → Setup and Diagnostics → Prime All Pumps. All four tubes in the titrator unit should drip acid or base into the sample cup. Once they do, hit Cancel.

5) To rinse the cell before starting the measurement, use the upper menu to select pH Titration → Rinse Cell. The instrument will empty the cell and prompt the user to remove the sample cup, rinse the impeller, siphons, and pH probe, fill sample cup with rinse liquid, and replace it. The rinse liquid is typically DI water for aqueous samples, or can be the suspending phase for non-aqueous samples. It is good practice to rinse the cell both before and after measurements, especially given that the instrument is a part of a shared facility.

6) Configure SOP as desired for titration measurements (see below).

7) Hit Start in the Measurement Window to begin. The software will prompt you to rinse the cell before beginning, and will also prompt you to place your sample in the sample cup.

pH Titration SOP Window

1) Titrator → Setup indicates the Contents, Type, Description, and Concentration of the 4 titration bottles. The fluids provided are: 1) Nitric Acid, 0.1 M, 2) Nitric Acid, 1 mM, 3) Potassium Hydroxide 1 M, and 4) Potassium Hydroxide 1 mM. Do not change this information.

2) Titrator → pH Titration Measurement contains a check box Automate pH Titration. When selected, the menu allows the user to set the Initial and Final pH as well as the Number of pH Steps desired for the measurements. The Initial Sample Volume must be entered accurately for efficient pH adjustment. The pH Adjustment Resolution is typically set to 0.2; smaller values increase the time required to adjust the pH at each pH point. Note that the measurement protocol specified in the rest of the SOP will apply to each pH point. NOTE: the pH values adjusted by the titrator may not be accurate. It is recommended to check the actual pH values after measurement. These can be found in the right hand side of the Main Window upon selecting the data in left hand side.

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