
	GILES CHEMICAL ~ PREMIER MAGNESIA		
	Company Procedure		
	Title: USP pH Meter Calibration and Maintenance	Number: L12-PR-100-015	
	Owner: Hunter Douglas	Revision: 3	
	Effective Date: 7/20/2015	Page: 1 of 3	

1.0 Purpose

The purpose of this procedure is to establish a proper method for calibrating, maintaining, and checking the accuracy of the pH meter used for USP testing. This SOP will dictate the 'passing' requirements necessary for the calibration and accuracy checks that are to be completed prior to any testing.

2.0 Scope

This procedure applies to the USP pH meter and is to be preformed **daily** and **prior** to use or any testing is performed. Maintenance should be performed **at least** one per week.

3.0 Responsibility

All tasks listed below are to be performed by QA Laboratory personnel or a designee.

4.0 Safety Considerations

Proper PPE should be worn at all times including but not limited to safety glasses, lab coat, and nitrile gloves.

Safety is a condition of employment. Employees are not authorized to work in an unsafe manner and are prohibited from harming the environment of the facility or community.

5.0 Materials/Equipment

- pH 4 calibration buffer
- pH 7 calibration buffer
- pH 10 calibration buffer
- Di water
- Electrode Filling solution
- Electrode Storage solution
- Lint-free wipes

6.0 Procedure

Calibration and Maintenance of the VWR Model SB20 pH meter (daily and weekly):

Daily Calibration:

1. Turn the meter on using the 'Power' button. Allow meter to complete its self-check procedure.
2. Remove the probe from the electrode storage container, rinse thoroughly with Di water, and carefully dry with a lint-free wipe.

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Effective Date: 7/20/2015	Page: 2 of 3



3. Remove the plug from the electrode filling hole and submerge the tip of the probe in the first pH buffer.
4. Press the cal key and “calibrate” will be displayed in the lower field. “P1” will be displayed indicating it is ready for the first buffer point.
5. When “ready” flashes and the reading solidifies, if the reading is correct, record that value on the *pH Meter Calibration and Maintenance Log (L12-PR-100-F015)*. If reading is incorrect change value to the correct reading by pressing the ‘Scroll’ button. Use the ‘OK’ button to move to the next digit and the ‘Scroll’ button to adjust the digit. When the reading is correct press “ok” to accept the pH value. The unit is now ready to capture the next buffer reading.
6. Rinse the electrode with Di water, wipe dry with a lint-free wipe and place the electrode into the next buffer solution.
7. Repeat steps 5-6 until all three buffers have been accepted.
8. Once all three buffers have been accepted the slope will be displayed. Record the reading on the *pH Meter Calibration and Maintenance Log (L12-PR-100-F015)*. The slope must have a value of 92-102% for calibration to have passed. If the slope fails, check the electrode for cracks or chips, verify all connections are tight and in the correct locations, and verify the electrode is clean and full then repeat the calibration procedure.

Note: If the calibration fails three times, the meter and probe cannot be used and must be marked as ‘out of service’ until such time as a cause can be determined.

Buffer Check:

1. After calibration has passed, the unit will switch to the ‘Measure’ mode. Place the electrode into one of the buffer solutions used for calibration. Once the reading solidifies and display shows ‘Ready’, record the reading on the *pH Meter Calibration and Maintenance Log (L12-PR-100-F015)*.
2. Clean and dry the electrode and repeat the readings on the remaining two buffers, cleaning and drying the electrode between each and, recording the obtained results.
3. For a passing result **ALL** buffer solutions must read as no more than ± 0.02 of their stated value. If the Buffer Check fails, the calibration procedure must be repeated, followed by the buffer check procedure again.

Note: If the Buffer Check fails three times, the meter and probe cannot be used and must be marked as ‘out of service’ until such time as a cause can be determined.



4. The final calibration must be initialed by the performing analyst and verified by a second analyst before use. The **ONLY** exception to this rule will be in the case of weekend testing when a second analyst is not present for witnessing. In this instance, the data will be reviewed and witnessed on the next business day

Maintenance:

To be completed weekly, BEFORE, the daily calibration.

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1. Inspect the electrode for scratches, cracks, salt/crystal build up, or membrane/junction deposits.
2. Rinse off salt build up with distilled water and remove any other deposits as indicated in manual.
3. Replace storage solution.
4. Fill the electrode with electrode filling solution if needed. Solution should be just below the filling hole.
5. Record maintenance completion on *pH Meter Calibration and Maintenance Log (L12-PR-100-F015)* along with calibration data and record a short description of tasks on the *Maintenance Log (L15-FM-100-019)*.

7.0 Reference Documents

USP pH Meter Calibration and Maintenance Log (L12-PR-100-F015)
Laboratory Maintenance Log (L15-FM-100-019)

8.0 Change Information

Updated procedure to include a Buffer Check
Updated calibration portion of procedure
Changed to new Doc System format

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