

Operating Instructions for the Corning pH Meter 140

Operating tips: Adapted from “3.7 Operating Hints” from Corning

- 1) The electrode must be stored in pH 7-buffered solution and not allowed to dry out. Do not use distilled water for storage of the pH meter.
- 2) The electrode must be filled with 3 M KCl. Add fill solution whenever the level falls 25 mm below fill hole. Optimally, the solution must be changed completely at least every 2 months.
- 3) All solutions to be measured with the pH probe should be at 25 °C. pH changes with temperature as the following chart illustrates:

°C	pH
0	7.11
10	7.06
20	7.01
30	6.98
40	6.97
50	6.97
60	6.97
70	6.99
80	7.03
90	7.03

These values based on the behavior of pH 7.00 buffer. Data obtained from Thermo Orion.

- 4) Before use, remove the fill hole cap. Failure to remove the cap will result in drifting readings. Replace the fill cap when finished to prevent evaporation of electrode fill solution.
- 5) Do not attempt to measure solutions containing fluoride ions below pH 5 or any organic solvents. The pH probe may be damaged.

WARNING: Handle concentrated acids and bases with extreme care. Concentrated HCl (~12.4 M) releases caustic vapors when exposed to the external atmosphere. Avoid contact with concentrated acids and bases; they will break down the latex in gloves.

- 6) In the fume hood, pour concentrated HCl into a smaller container for use with the pH meter. Transfer pipettes are easier to use with small containers.
- 7) Use plastic transfer pipettes to add acids and bases. Never use micropipettes with disposable tips; vapors from concentrated acids and bases can damage the mechanisms. Do not use the same transfer pipette for both acids and bases. Discard of transfer pipettes after use.
- 8) Slowly add concentrated acids and bases. Add small amounts and wait for the solution to stabilize before adding more.

- 9) All solutions should be adjusted to pH ± 0.02 .
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Operating instructions:

- 1) Select pH mode by pressing the "mode" button until the LED above pH is illuminated. Place the electrode in pH 7 buffer.
- 2) Press "cal" to start calibration. When the reading stabilizes, press the "=" button.
- 3) Rinse the electrode with distilled water, blot it gently on a Kim wipe, and transfer it to a slope buffer (either pH 4 or 10).
- 4) Press "cal" to start calibration. When the reading stabilizes, press the "=" button.
- 5) Rinse the electrode, blot it gently on a Kim wipe, and place it into a sample with unknown pH.
- 6) Press "=" to start measurement.
- 7) If desired, adjust the pH of the sample with HCl or NaOH. Use concentrated (>10 M) acids and bases when making large pH changes. Use 1 M solutions for small pH changes.
- 8) When reading stabilizes, press "=" to freeze the displayed pH. This is the final pH of the solution.
- 9) For each solution to be tested repeat steps 5-8.