Rapid RH® Portable pH Meter

User's Manual

WAGNER METERS
Unleash Your Expertise

This page intentionally left blank.

Contents

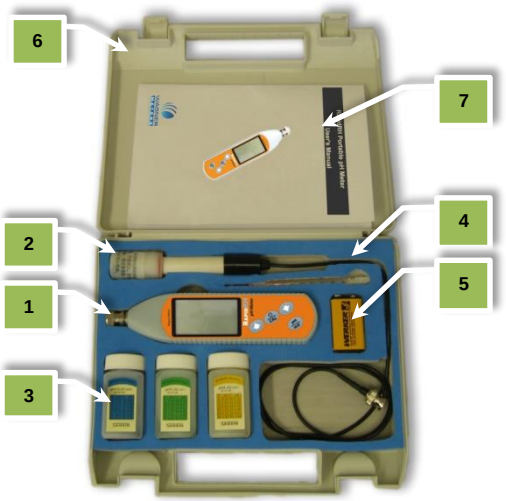
1. Introduction

Thank you for using the Rapid RH® Portable pH Meter. The Rapid RH® Portable pH Meter with its integrated smart data chip is easy to operate and compact to carry. Its sleek design encases a variety of features to help you accurately find the pH level of any solution. The Rapid RH® Portable pH Meter includes:

- Easy to use dual-slope three-point automatic calibration with manual temperature compensation
- Automatic electrode slope percentage display after calibration
- Synchronous LCD display that shows both the pH and temperature of the solution
- Dual sets of buffer solution pH data (Chinese & European standards), which can be selected manually
- Low voltage display and 15 minute idle automatic shutdown
- Selectable Celsius (°C) or Fahrenheit (°F) display
- A portable case with room for calibration buffer solutions

The Rapid RH® Portable pH Meter gives you portable, accurate pH testing.

2. Included with the Rapid RH® Portable pH Meter



1.	Rapid RH® Portable pH Meter	1 set
2.	2015P-C pH electrode	1 pc
3.	pH 4.00, 7.00, 10.01 buffer solutions (50 ml each)	1 bottle of each
4.	Thermometer	1 pc
5.	6F22# 9V battery	1 pc
6.	Carrying Case	1 pc
7.	Manual	1 book

3. Understanding pH

pH is a measurement of the acidity or basicity of an aqueous solution. When pH is 7.0, the aqueous solution is said to be neutral; solutions with a pH less than 7.0 are said to be acidic (the lower the number [i.e. 2.4], the more acidic) and solutions with a pH greater than 7.0 are referred to as alkaline (the higher the reading above 7.0, the more alkaline). pH is represented on a scale of 0 – 14, with 0 being the highest level of acidity, and 14 being the highest level of alkalinity. Understanding the pH of a solution can help gauge the ways in which it will interact with other substances introduced to the solution, or that the solution will come in contact with.

4. Calibrating the pH Meter

NOTE: Prior to initial usage, you should do a three-point calibration. (i.e., repeat below steps with all three buffer solutions [4.0, 7.0, and 10.01]. Below steps should be followed prior to each usage.)

A. Use the thermometer to measure the temperature of the 7.0 pH buffer solution.

B. Press the button CAL to turn on the Rapid RH® Portable pH Meter.

C. Press the Up arrow or the Down arrow to manually adjust the temperature on the LCD screen to match the temperature of the 7.0 buffer solution, taken in step A, with the thermometer.

D. Open the cover of the pH socket and connect the electrode to the pH meter.

E. Place the pH electrode into distilled water, wash it, and then allow the probe to air dry or gently blot it dry. The electrode must also be rinsed and dried between each sample reading.

F. Place the pH electrode into the pH 7.00 buffer solution, stir gently, and then hold the electrode stationary in the buffer solution. After the pH value is stabilized, press the calibration button CAL until the LCD screen displays. Release the calibration button. The LCD screen will

display a flashing 7.00, and then, after a few seconds, will appear on the display. The calibration process is complete when the final pH calibration value appears on the display.

5. Measuring pH of Concrete

A. Clean the area of concrete to be tested.

B. Place several drops of distilled or deionized water on the concrete surface, forming a puddle approximately 1 inch in diameter.

C. Allow water to sit for 60 seconds prior to testing.

D. Place pH electrode into puddle for 10 seconds.

E. Record pH reading on meter's digital display.

F. Compare this reading with the specific flooring and/or adhesive manufacturer's installation guidelines to determine if the pH level is acceptable for their products.

6. Additional Features of the Rapid RH® pH Meter

A. Changing Temperature Measurement Units:

To change the temperature display from °C to °F, press and hold the button for a few seconds until the desired change occurs.

B. Low Battery Warning:

A battery symbol appears on the LCD screen when the battery is at an unacceptably low level. To replace the battery, open the battery access door, and replace the existing battery with a standard or NiCad 9V battery. Be sure the battery and battery access door are properly installed before operating the pH meter.

C. Power Conservation Feature:

If idle, the Rapid RH® Portable pH Meter will automatically power down after 5 minutes.

7. Storing the Rapid RH® Portable pH Meter

A. A small amount of protective solution is kept in the small bottle holding the pH electrode's front-end. This solution is to maintain the electrode's glass ball and junction's sensitivity to the measured solution. When taking a pH measurement, unscrew the bottle cap, bring the electrode out, and wash the electrode with pure water (see 4E on page 4). After completing a pH measurement, return the electrode into the bottle of protective solution and tighten the cap to prevent spilling of the protective solution during storing.

   Note: If the protective solution in the bottle looks muddy or moldy, replace with new protective solution (see 7B below) to store the electrode properly.

B. To make the electrode protective solution: Dissolve 25 grams of Potassium Chloride to 100 ml pure water.

   Note: Do not leave the electrode immersed in pure water, protein solution, or acidic fluoride solution for a long time. Avoid direct contact between the electrode and organic oil.

C. The pH meter should be kept dry and clean; especially the temperature meter and electrode outlets. If these elements become dirty or damp during storage, the pH meter may give inaccurate or failed pH measurements.

   Note: If the pH meter needs cleaning, lint-free absorbent cotton and ethyl alcohol can be used sparingly.

8. Additional Information

A. The calibration times should be subject to the actual sampling solution, electrode capability and precision requirement. High precision measurement (≤±0.02 pH) requires more frequent calibration and highly-precise buffer calibration solutions. Normal precision measurement (≤±0.1 pH) normally requires one calibration per week. However, we recommend you recalibrate the Rapid RH® Portable pH Meter in the following situations:

   a. The electrode has not been used for a long time, or needs replacing;

b. Every time after measuring the strong acidic solution (pH<2) or strong alkaline solution (pH>12);
c. Every time after measuring a fluoride solution or strong organic solution;
d. The temperature of the solution varies greatly from the temperature of the calibration solution.

B. Because accurate pH levels in the buffer solutions are critical to accurate pH measurement, to ensure correct pH meter calibration replace each buffer solution after several uses.

C. The electrode should be cleaned with distilled water and allowed to air dry before and after each use and before storing.

Note: Do not use facial tissue to dry the electrode as the electrode electric potential can be destabilized and the electrode will function slowly or improperly. If necessary, a chemical solvent can be used after taking a pH measurement and before cleaning with distilled water.

D. Regular cleaning and maintenance is important to maintaining the accuracy and prolonging the lifespan of your Rapid RH® Portable pH Meter. For daily maintenance, gently wash the electrode with diluted water and allow to air dry before each use and before storing. For specific cleaning situations of the electrode and glass ball, see section 9B for further cleaning options. The electrode shell is made of Makrolon® and should be washed often. DO NOT use carbon tetrachloride, trichloroethylene, tetrahydrofuran, or acetone to clean the electrode shell as these chemicals will dissolve the Makrolon® shell.

E. Although the pH electrode's standard life is one year, this lifespan may be shortened by inappropriate use or storage. After one year, replacing the pH electrode is strongly recommended to maintain accuracy during pH measurements.

9. Troubleshooting the Rapid RH® Portable pH Meter

A. The pH meter may occasionally freeze (the on/off button does not work at all). Solutions include: taking the battery out, putting it back, and then restarting the pH meter.

B. If the electrode's glass ball has been damaged by a solution or the liquid junction has been blocked by a solution, the pH electrode will become less sensitive, function slowly, or give incorrect pH readings.

a. If the glass ball has developed solution deposits: Soak the electrode in a solution of 0.1 ml/L hydrochloric acid dilute for 24 hours (to make: top off the 9 ml of Acid Hydrochloric Dilute with pure water to 1000 ml); wash the electrode with distilled water; then soak the electrode in the protective solution for 24 hours. If the electrode has more serious deposits: Soak the electrode in 4% HF (hydrofluoric acid) for 3 to 4 minutes; wash the electrode with distilled water; then soak the electrode in the protective solution for 24 hours.

b. To clean the electrode glass ball and liquid junction:

PROBLEM:	**CLEANING AGENT:**
Inorganic metallic oxide	<1 mol/L diluted acid
Organic oil	Diluted detergent (weak alkaline)
Resin macromolecule matter	Diluted alcohol, acetone, or ether
Protein blood ball sedimentation matter	Acidic enzyme solution (e.g. Saccharated Yeast Tablets)
Pigments	Diluted sodium hypochlorite disinfectant or peroxide

10. Optional Accessories for the Rapid RH® Portable pH Meter

A. 201-C# pH electrode (plastic shell + 1 meter of wire).

B. Calibration buffer solutions (pH4.00, pH7.00, and pH10.01 types). Size: 50ml/bottle; 250ml/bottle; and 500ml/bottle.

11. Technical Specifications

A. Measuring range: pH： (0~14.00) pH　mV：±1999mV
B. Precision: pH：0.01 pH　mV：1 mV
C. Accuracy: pH： Electronic meter：≤±0.01pH
D. Input Impedance：≥$1\times10^{12}\Omega$
E. Temperature Compensation Range: 32-212° F (0-100° C)
F. Memory protection battery: One 6F22# 9V Battery
G. Size/Weight: 168×43×26 (mm) / 170(g)
H. Work Environment: Temperature 41- 95° F (5-35° C); relative humidity (RH) ≤85%RH non-condensing

12. Warranty Information

A. The Rapid RH® Portable pH Meter (electrode excluded, see below) carries a six month warranty against accidental damage.
B. Only the Rapid RH® pH Meter's electrode is not covered by this warranty. However, it is possible to repair/exchange the electrode if it has not been used.
C. This warranty does not cover damage due to inappropriate usage, storage, or unauthorized repairs.

This page intentionally left blank.

326 Pine Grove Road, Rogue River, OR 97537 USA

Worldwide Toll-Free: (844) 726-6308
Email: sales@wagnermeters.com

For more information visit:
www.wagnermeters.com