

# Measuring soil pH using a soil/water mix

## The Problem

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Your staff have been using a meter with a spear tip electrode to take soil pH readings directly, you loved how easy they were to use and the speed at which staff were able to take readings. However, you are finding that they don't take the care required to use this method and it is resulting in breakages and unnecessary costs. So, how can you get around using the direct insertion method whilst still obtaining accurate pH measurements?

## The Solution

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For times when these issues arise we recommend doing the measurements using a soil/water mix. This prevents the need to insert the pH electrode directly into hard or rocky soils that have the potential to break the electrode. Whilst a soil/water mix is a slower method it does help to alleviate the risk of breakage.

The method for undertaking this style of measurement is explained below:

Prepare a sample by combining a 10g soil sample with 10ml of distilled water in a clean dry jar, beaker or sample container (a 1:1 solution). Mix these thoroughly and allow the mixture to settle for 10 minutes. Carefully insert the probe so that bulb is in the soil part and the junction is in the supernatant (the water above the settled soil). Then allow the reading to stabilise.

For these requirements either a pen tester with a built in bulb electrode or a handheld meter with a separate bulb electrode can be used and is dependent upon your preference. As a starting point we recommend the [ECOPHTEST2](#), this is a basic pen tester with an accuracy of  $\pm 0.1$  pH. If you are looking for a more accurate pen tester the [EC-PHTestr20](#) or [EC-PHTestr30](#) are the best solutions as they offer  $\pm 0.01$  pH accuracy. When it comes to handhelds with a separate electrode there are a number available in our range, however the options that we recommend for this application are either the [EC-PH5PLS02K](#) or [EC-PHWP300-02K](#), the reason for this is that they are robust units that come in carrying kits with calibration and rinsing solutions. They both also offer protection against water ingress. In the case of the [EC-PH5PLS02K](#) it has a splash proof keypad, whilst the [EC-PHWP300-02K](#) is a completely waterproof unit.

If you would like to discuss these meters or doing a soil/water pH measurement further please feel free to contact one of our friendly Scientists via [email](#) or phone on **1300 737 871**.

## Recommended Products

### Handheld pH Tester – ECOPHTEST2

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The handheld ECOPHTEST2 pH Tester is a highly accurate and easy way to measure the pH levels in several different environments. The ECOPHTEST2 is waterproof, and it is also lightweight enough that it floats for easy retrieval. The auto-off function will conserve battery life by shutting the tester off after 8.5 minutes of non-activity.

### EC-pHTestr20 – Waterproof pH Testr20 Tester with ATC: 0.01 pH accuracy

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The EC-PHTESTR20 is a high quality, waterproof (IP67) pH pen tester. This unit allows for automatic temperature compensation although it does not display the temperature. This unit is durable and good quality and reasonably priced, it is able to measure pH between 0pH to 14pH with an accuracy of +/- 0.01pH.

### EC-pHTestr30 – Waterproof pH Testr20 Tester with ATC: 0.01 pH accuracy

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The EC-PHTESTR30 offers all the same functions as the EC-PHTESTR20; however it allows the user to measure temperature simultaneously with pH.

## EC-PH5PLS02K - EcoScan pH 5 pH Meter with single junction pH electrode (0-80C), ATC probe and pH carrying kit set

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The EC-PH5/02K Ecoscan meter, is a high quality and professional pH and temperature meter, which has an external probe for easy sampling. The meter reads pH within the range 0-14pH with an accuracy of +/- 0.01pH, temperature can be measured between 0°C and 100°C. This meter is supplied with buffer solutions pH4 and pH7 as well as deionized water for rinsing. The meter has a protective rubber shield to protect it from accidental knocks; it is a robust and high quality meter.

## EC-PHWP300-02K - Waterproof CyberScan pH 300 pH-mV Meter with double junction pH electrode, ATC probe and pH carrying kit set

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Uniquely designed for easy one-hand operation with convenient multi-point push button calibrations, the CyberScan pH 300 is waterproof to IP67 standards and is ideal for outdoor measurements of pH, mV and temperature. It features 5-point push-button calibration and auto-buffer recognition for quick, easy calibrations with minimal errors. This meter is ideal for checks in water conditioning plants, cooling towers, plating and finishing operations, food processing (for HACCP compliance), water testing, printing and chemical industries, rinse water analysis, water/wastewater treatment and chemical process verification. Use with ORP electrode to monitor plating operations, and other redox measurements.