

Mobile Environmental Analysis Methods – What to Expect from New Smartphone Technology

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Regular soil testing is important to ensure quality and continued optimal performance of agricultural areas managed under modern agricultural conditions. Parameters such as nitrate, phosphate, and potassium, as well as pH or ammonium, are tested.



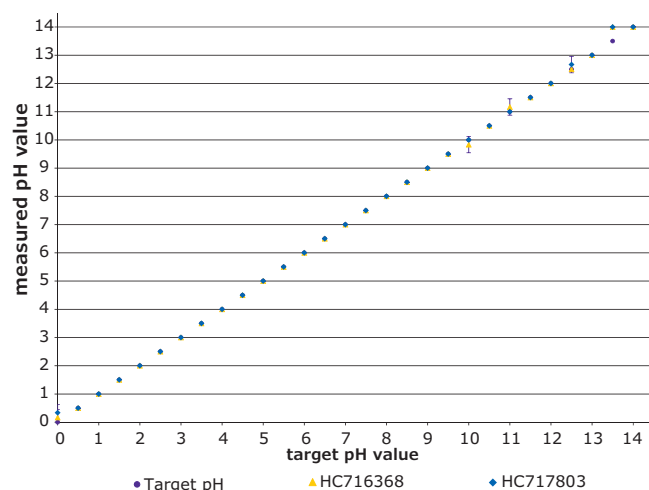
For on-site analysis, sensors, mobile photometers (i.e., Spectroquant® Move) or reflectometers (i.e., Reflectoquant® RQflex 20), as well as liquid colorimetric tests or strip-based colorimetric tests (i.e., MQuant® test strips), are available. A recent addition is the option to use modern

smartphone technology for strip readout, such as with the new app reader MQuant® StripScan. The app* guides the user through the measuring process, reading MQuant® test strips using the phone camera and a credit card-sized color reference as external standard. The benefits include higher resolution readings (**Figure 1**) and automatic value recording, as well as additional share, export and visualization options for documentation and reporting. The app is complemented by the web platform mquant-stripscan.com for convenient result monitoring, management and transfer. With this concept, the new app reader combines the ease of use, intuitive handling, and affordability of test strips with the increased accuracy and data management options of instrumental readout.

How to use smartphone technology for soil analysis – application example

To measure pH in soil using MQuant® StripScan, 10 g of the homogenized sample is mixed with 25 mL 0.0125 M CaCl₂ solution, incubated for 15 min, then analyzed using MQuant® pH 0-14 strips: A test strip is immersed in the soil slurry for 10 min, then measured by following the instructions on the StripScan app (ensuring that no residual particles rest on the reaction

Figure 1. pH measurements of Certipur® buffer solutions (Merck KGaA, Darmstadt) (triplicate values \pm SD) as compared to pH target values. Measurements were made using the smartphone app reader MQuant® StripScan according to instructions, along with pH test strips (Cat. No. 109535, batches HC17803, HC716368), and color reference card (Cat. No. 103736).



zones). Automatic camera acquisition provides a pH measurement with values in 0.5 increments (vs. 1.0 visual only) within seconds, and the data is automatically stored and graphed.

Featured Products

Description	Qty.	Cat. No.
MQuant® StripScan Reference Card for pH	1	1.03736.0001
pH-indicator strips pH 0 - 14 Universal indicator	100	1.09535.0001

Related Products

Description	Qty.	Cat. No.
MQuant® StripScan Reference Card for Nitrate	1	1.03733.0001
MQuant® Nitrate test strips 0 - 500 mg/L NO ₃ ⁻	100	1.10020.0001
	25	1.10020.0002
MQuant® Nitrate test strips 0 - 500 mg/L NO ₃ ⁻ (individually sealed)	1000	1.10092.0021

The smartphone app (currently for iPhone only) can be downloaded for free from the AppStore:



Discover our StripScan Website here: mquant-stripscan.com

For more information, visit SigmaAldrich.com/mquant-stripscan