

Automated Particle Size Analysis

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Reduce operation time to particle size

PARIO

The times are changing

Conventional particle-size analysis operation takes a lot of time and energy. Readings or samplings have to be done by hand, at regular intervals, and for up to 24 hours. Because the procedure is manual, it's prone to errors—which can easily lead to wasted time and effort.

Our goal at METER is to give you the tools and services that allow you to get precise results and focus on your research. That's why we developed a revolutionary new way to reduce the time and effort needed for soil particle-size analysis.

Particle-size analysis, automated

PARIO calculates the particle size distribution by Stokes' law, with the range of particle sizes spanning from 63 μm to 1 μm .

It allows for unattended, automated operation, with no interference by lab personnel. Just set it up and come back 6 hours later to a finished measurement with all the data you need.

Measure more. Worry less.

PARIO reduces errors, because it does not require the insertion of a hydrometer or sampling of suspension volume with a pipette, which disturbs the sedimentation process. Being automatic, it also avoids manual reading or calculating errors. This results in an

overall error rate of just 3%—lower than any conventional particle-size analysis method.

PARIO automatically measures at an interval of 10 seconds and continuously records the change of suspension pressure as well as the temperature. This results in highly-accurate and continuous particle-size distribution curves. The data are automatically evaluated by our new data processing algorithm called “Integral Suspension Pressure Method” (ISP).

The PARIO measuring method is based on the well-established hydrometer or pipette method. That means there is no need for soil-specific corrections with transfer functions as required for almost any other automated measurement method, such as laser diffraction or image analysis.

Complete Convenience

To save you even more time, PARIO comes with an easy-to-use, all-in-one software solution for automated data inquiry, visualization, evaluation and export.

All of this serves one goal—to reduce the operating time you spend for particle-size analysis, while at the same time improving accuracy. So you can focus on your research, not operating machines.

The new PARIO soil texture analyzer. Reducing operation time to particle size.

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Features

- Calculation of particle size distribution by Stokes' law
- Autonomous operation after measurement start
- Quasi-continuous resolution of particle size distribution
- No physical disturbance of suspension during measurement
- Avoidance of manual reading errors
- Avoidance of manual calculation errors
- Temperature dependence automatically integrated calculation of particle size distribution

Specifications

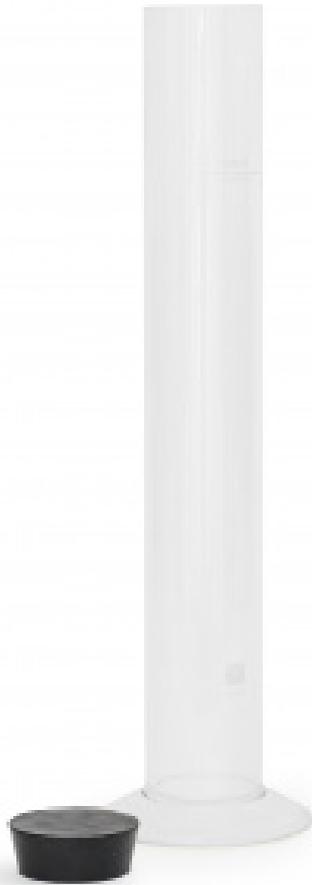
Range of particle sizes	63 μm to 1 μm^* (eff. hydrodynamic diameter)
Approximate error in mass fraction detection	$\pm 3 \%$
Typical particle mass	25 to 40 g/L suspension
Typical duration of measurement	6 hours
Measuring interval	10 s

Operating temperature range	15 °C to 35 °C
Max. tolerable temperature change during measurement	3 °C
Warranty	12 months
	Note* 63 µm to 1 µm with 24 hours measuring period 63 µm to 2 µm with 6 hours measuring period For particle size distribution analysis, manual sieving and recording the sand fraction is required

Accessories



PARIO Sedimentation Cylinder



PARIO Cylinder with Bung Stopper

Support

Have a question or problem? Our support team can help.

We manufacture, test, calibrate, and repair every instrument in house. Our scientists and technicians use the instruments every day in our product testing lab. No matter what your question is, we have someone who can help you answer it.

Email: support.environment@metergroup.com

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Downloads

PARIO Control ZIP / 12.60 MB

[PARIO User Manual PDF / 2.99 MB](#)

Related Products



HYPROP 2*

The improved version of the evaporation method in the lab to determine the pF curve and the unsaturated conductivity of soils sets a new benchmark. HYPROP makes highly precise, simultaneous measurements of hydraulic characteristics during the natural desiccation of the soil. Thus, HYPROP delivers data with high resolution in a minimal period of time under natural conditions.

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KSAT

Saturated hydraulic conductivity isn't an easy measurement to make, mostly because of the lack of a simple-to-use tool. Many soil scientists and engineers resort to cobbling together their own contraptions that are either complicated and finicky, or simple and crude. Neither have proved to be effective setups in terms of accuracy or convenience.

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