

Moisture Content using the Dewpoint Method

10x more precise; half the operating cost.



AquaLab Series 4 DUO uses the “dewpoint method” to measure moisture content and water activity with the same instrument. The result: complete moisture analysis in about 5 minutes with some big advantages over traditional moisture meters.

How It Works

The dewpoint method doesn't use chemicals or high temperatures. Using it is as easy as sealing a lid over a sample and waiting for vapor equilibrium. Inside the instrument, an infrared beam focused on a tiny mirror determines the precise dewpoint temperature of the sample. That dewpoint temperature is then translated into moisture content and water activity readings. Because the instrument is lightweight, portable, and easy to use, it puts precision moisture

content readings in the hands of virtually anyone on the production line or in the supply chain.

10X the Precision

Precision varies with the product tested, but for many products dewpoint moisture content has 10x the precision of a typical moisture meter.

Testable Accuracy

Standardization issues have often made moisture content more opinion than fact. As one manufacturer said, “My suppliers quote me what the moisture content was when the ingredient shipped. That number's meaningless. They can say whatever they want because we don't have reliable standards to measure against.”

The dewpoint method lets you validate moisture content

readings with independently verifiable salt standards. DUO stores time, date, and user information with every calibration and measurement, and includes administrator passwords and access restrictions so you can ensure the integrity of your data.

Half the Cost

The Dewpoint method's precision puts it in the same class with high-end moisture methods like Karl Fischer Titration.

But even compared with more common moisture balances, DUO costs less to run. For example, if you run 20 samples a day, you'll spend \$1,598 on supplies (cups and standards) for DUO. At that same rate, you would spend \$4,560 for weighing pans for a moisture meter. ■

DUO'S “DEWPOINT” MOISTURE CONTENT METHOD

- Odor-free. No oven.
- Chemical-free.
- Precise—Reduces error by up to 90%.
- Verifiable with independent salt standards.
- Repeatable.
- Green—Uses 95% less energy.
- Portable—the meter weighs just 7 pounds.
- Easy to use—precise measurements with minimal training.
- Secure—offers administrative control over calibration and sample data.
- Complete moisture analysis: both moisture content and water activity.

**AQUA
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■ Both moisture content and water activity are critical quality measures in powdered and granular products like spices.

AquaLab DUO Series 4TE



Free Loaner Service

Free Technical Support

Free Application Support
over the life of the instrument

Specifications

Sensor Types

- Chilled-mirror dewpoint.
- Infrared temperature.

Accuracy

$\pm 0.003 a_w$

Range

0.10 to 0.95 a_w

Moisture Content Precision

0.02%

Agreement to Moisture Content Reference Method

$\pm 0.1\%$ to $\pm 0.5\%$

Sample Dish Capacity

7 ml recommended (15 ml full)

Resolution

Moisture: $\pm 0.01\%$ mc
Water Activity: $\pm 0.0001 a_w$
Balance: not applicable, none.

Measurement Speed

Less than 5 minutes.

Display

128x64 pixel lcd display
with backlighting.

Results Displayed

Percent moisture
and water activity.

Temperature Control

15 to 50°C ($\pm 0.2^\circ\text{C}$)

Temperature Stability

User-selectable range, internal
thermoelectric controlled.

Test Result Memory

10,000 readings (each reading
includes water activity, moisture
content, temperature, time, date,
operator, and sensor used)

Program Identification

Alphanumeric; Programmable to
display product name, lot, or
product ID number.

Operating Environment

4 to 50°C (39.2 to 122°F)
0 to 90% Relative Humidity
(non-condensing.)

Universal Power

110 V to 220 V AC, 50/60 Hz
Less than 0.4 amps.

Data Interface

RS232A compatible,
8-data bit ASCII code,
9600 baud, no parity, 1 stop bit,
cable included.

Case Dimensions

26.7 x 17.8 x 12.7 cm
(11 x 7.1 x 5.1 in)

Case Material

Machined aluminum frame;
injection molded plastic cover.

Weight

3.18 kg (6.9 lb)

Warranty

Three years, factory parts & labor.

Certifications

CE; AOAC Approved Method for
Measurement of Water Activity

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