Rotronic Instrument Corp

Water Activity

The Basics

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Webinar Presenters

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Agenda

- What is water activity or commonly referred to as Aw?
- Why measure?
- How do I measure for Aw?

What is water activity?

By definition, it is the measurement of vapor pressure generated by the free or non-chemically bound water in foods and other products.

Moisture Content simply stated is bound water plus free water.

Why measure water activity?

- The free water in a product influences it's microbiological, chemical and enzymatic stability.
- This is of great importance especially for perishable products such as foods, grains, seeds and particularly for pharmaceutical powders and tablets.

Why measure water activity?

Water activity alone does not:

- Define shelf life
- Define growth potential of specific organisms
- Define physical properties

Application - Food

- Control Aw to limit microbial growth
- Measure Aw to help establish shelf life

Application – Pharmaceutical Production

- QA Limits
- Batch checks
- Multiple sample
- Tablet, granules & powders

Comments & Questions

If we don’t get to your question today, we’ll respond via email after the webinar.

Aw Quick functionality for fast and precise results.

- Equilibrium Aw measurement takes about an hour to determine exact Aw value.
- The Rotronic Aw Quick function allows Aw measurement results in approximately 5 minutes.

Rotronic Measuring Technique

Rotronic Water Activity Systems use a relative humidity sensor.

This offers good long term stability and repeatability with minimal maintenance.

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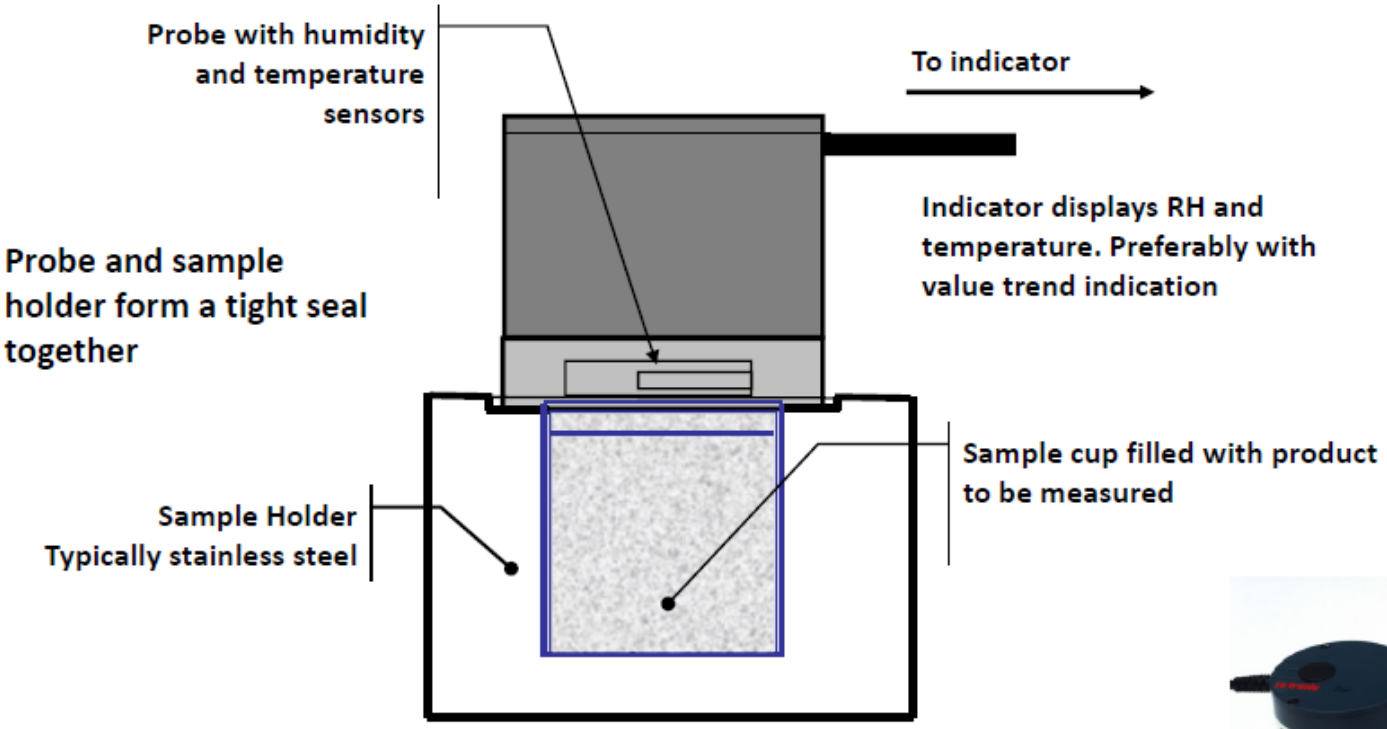
%RH Sensor Measurement System



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Sample Preparation

- How should I prepare my samples? The answer depends on the wider application and reasons for testing.
- For most users the goal is comparable and repeatable processes, so that the measurements of a product today can be compared to measurements tomorrow.

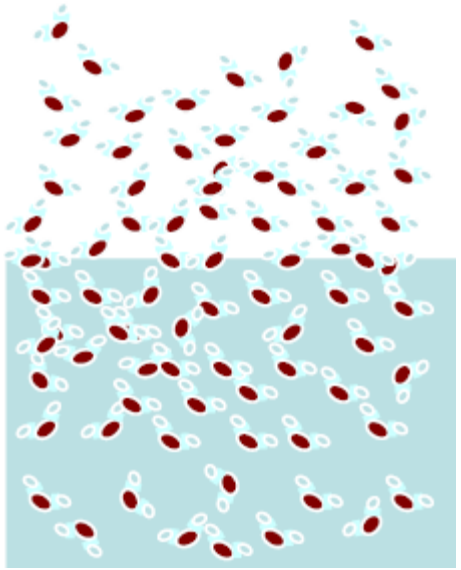
Sample Preparation

There is no single answer, our advice is:

- Be consistent in your procedures
- Record what method you use and why
- Be detailed with your preparation procedures
- Check how the product is processed for other tests
- Limit handling and exposure of the product (which might result in moisture loss or gain)

Aw principle

- To test for Water Activity we must have static equilibrium
- The product, the instrument and the environment are at the same temperature.
- The partial pressure of water vapor in the environment is the same as in the product.



Rotronic and Water Activity

- All sets offer the benefit of a well designed easy to use measuring probe.
- It is suitable for a wide range of applications with the convenience of minimal maintenance, range 0…1Aw
- Daily cleaning and calibration is not needed.

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Rotronic Water Activity Instruments

- www.rotronic-usa.com/water-activity

Other instruments

- /humidity
- /dewpoint
- /co2
- /service

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