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# Water Activity Guide

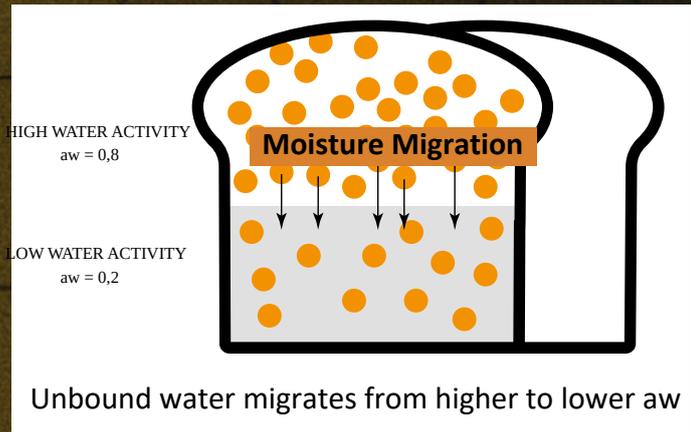
**- Selecting the Best Novasina Instrument -**



# What is Water Activity?

**Water activity (also known as 'aw' or ERH%) specifies the unbound water available in your product. It's an important measurement to determine product quality and safety, especially microbial stability.**

Water activity is the measurement of the equilibrium relative humidity of a material, that is the humidity that a hygroscopic material generates when it comes into balance with the air surrounding it in a sealed headspace. This "Available Water" is the unbound water able to come and go from a material by adsorption / desorption. The water activity of the sample is equal to the relative humidity of air surrounding the sample in a sealed measurement chamber, normally at controlled temperature 25°C. Unbound water will also migrate from higher to lower to achieve equilibrium.



**The higher the aw value, the greater the influence of temperature on the stability of water activity**

## Water Activity can be expressed as either:

**Equilibrium relative humidity (erh)  
scaled 0-100% erh units**

**OR**

**Water activity (aw) scaled 0-1 aw  
units. Most microbiologists tend to  
use aw units.**

Air relative humidity is influenced by temperature so it follows that equilibrium relative humidity (water activity) will be too. The higher the aw value, the greater the influence of temperature on the stability of water activity.

For most samples, temperature control of 25°C is essential above 0.85 aw units.

The aw value of a product may be critical to ensure microbial stability and safety, it may even be a legal parameter, often measured as part of Critical Control Point (CCP) validation, monitoring or verification.

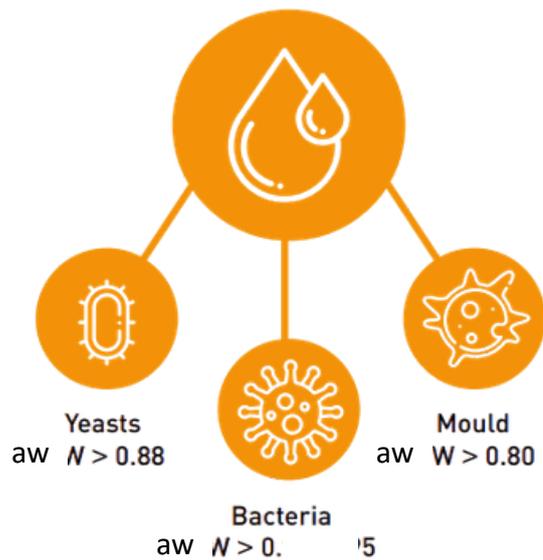
Water activity can be used for microbiological growth control, shelf-life, the stability of product composition (moisture migration), general product quality (texture, taste, potency & colour).

# Why Measure Water Activity?

Water activity measurement is important to maintain high product quality safety and shelf life. By measuring water activity, it is easier to predict which microorganisms will be possible sources of spoilage.

Measuring water activity makes it possible to control and improve the manufacturing process to ensure mechanical, physical, chemical and microbiological stability. The measurement of water activity is critical for the quality and health and safety of a product.

Water activity shows the amount of water which is available to micro-organisms for reproduction. Each type has a minimum water activity value. Below this aw value, the growth of that species isn't possible.



Water activity has a direct impact on growths of moulds, yeast and bacteria.

Water Activity Upwards Threshold	Type of Microorganism
0.91	Most bacteria
0.88	Most yeasts
0.80	Mildew
0.75	Halophile bacteria
0.70	Osmiophile yeasts
0.65	Xerophile mildew
0.60	Most moulds

## Water Activity Influences

- Texture abnormalities
- Flavour abnormalities
- Microbiological stability
- Chemical stability
- Enzymatic stability
- Water migration
- Browning reactions
- Oxidation reactions
- Shelf life
- Packaging



# Novasina LabMaster-aw Neo

## The Benchmark in Water Activity Testing

The LabMaster-aw Neo is a high precision water activity meter that is the ideal choice for routine determination of water activity with sample temperature control, where absolute confidence is essential.



## Technical Specification:

Technology	Precision electrolytic sensor system
Calibration	Automated & secure - RFID technology (0.004 to 1.0 aw)
Measurement Range	0.030 to 1.000 aw / 15 to 30°C
Temperature Control	0 to 60°C (heat or cool with respect to ambient)
Display	7-inch touchscreen
Accuracy	± 0.0030aw / ±0.10°C
Dimensions	423 x 260 x 186 mm
Power Supply	90 to 260 VAC

## Applications / Industries:



Bakery



Powder / Spices



Hygiene



Pet Food



Pharmaceuticals

# Novasina LabTouch-aw

## Mid-range with Temperature Control:

The LabTouch is a mid-range water activity meter with above ambient sample temperature control (heating only), designed for applications between the LabMaster aw Neo and LabSwift. Data and protocols are stored on an SD card and can be transferred to a PC or printer for analysis. It operates over a recommended range of 0.11 to 0.95 aw.



## Technical Specification:

Technology	Precision electrolytic sensor system
Calibration	Menu intuitive guided calibration (11 to 97% rh)
Measurement Range	0.11 to 0.970 aw / 15°C to 30°C
Temperature Control	Heating above ambient 15°C to 30°C
Display	4" Touch screen
Accuracy	± 0.005 aw / ±0.1°C
Dimensions	105mm (H) x 200mm (W) x 300mm (D)
Power Supply	90 to 260 VAC

## Applications / Industries:



Cereal



Powder / Spices



Tobacco



Confectionary



Pet Food

# Novasina LabSwift-aw

## Fast, Portable and Reliable Testing:

The LabSwift-aw is a fast, portable water activity meter for low to medium aw products such as powders and dried foods. It offers high accuracy, reproducibility and robustness, stores data on an SD card, supports PC analysis, and is supplied with sample cups and UKAS-certified calibration salts.



## Technical Specification:

<b>Technology</b>	Precision electrolytic sensor system
<b>Calibration</b>	11 to 85% rh
<b>Measurement Range</b>	0.11 to 0.85 aw / 15°C to 30°C
<b>Temperature Control</b>	No temperature control available
<b>Display</b>	Reflective, high contrast LCD (35 x 69mm)
<b>Accuracy</b>	± 0.010 aw / ±0.3°C
<b>Power Supply</b>	90 to 260 VAC

## Applications / Industries:



Cereals



Powder / Spices



Tobacco



Confectionary

# Novasina LabStart-aw

## The Entry Level Solution for Water Activity:

The LabStart-aw is a low-cost, portable water activity and ERH% meter for the mid range (0.33–0.75 aw), offering fast, accurate, and reproducible measurements. Ideal for food applications such as baking and chocolate production, and supplied with 33% and 75% calibration salts and sample cups.



## Technical Specification:

<b>Technology</b>	Precision electrolytic sensor system
<b>Calibration</b>	33 to 75% rh
<b>Measurement Range</b>	0.33 to 0.75aw / 15°C to 30°C
<b>Temperature Control</b>	No temperature control available
<b>Display</b>	Reflective, high contrast LCD (35 x 69mm)
<b>Accuracy</b>	± 0.01 aw / ±0.3°C
<b>Dimensions</b>	225 x 140 x 85mm
<b>Power Supply</b>	90 to 260 VAC

## Applications / Industries:



Bakery



Powder / Spices

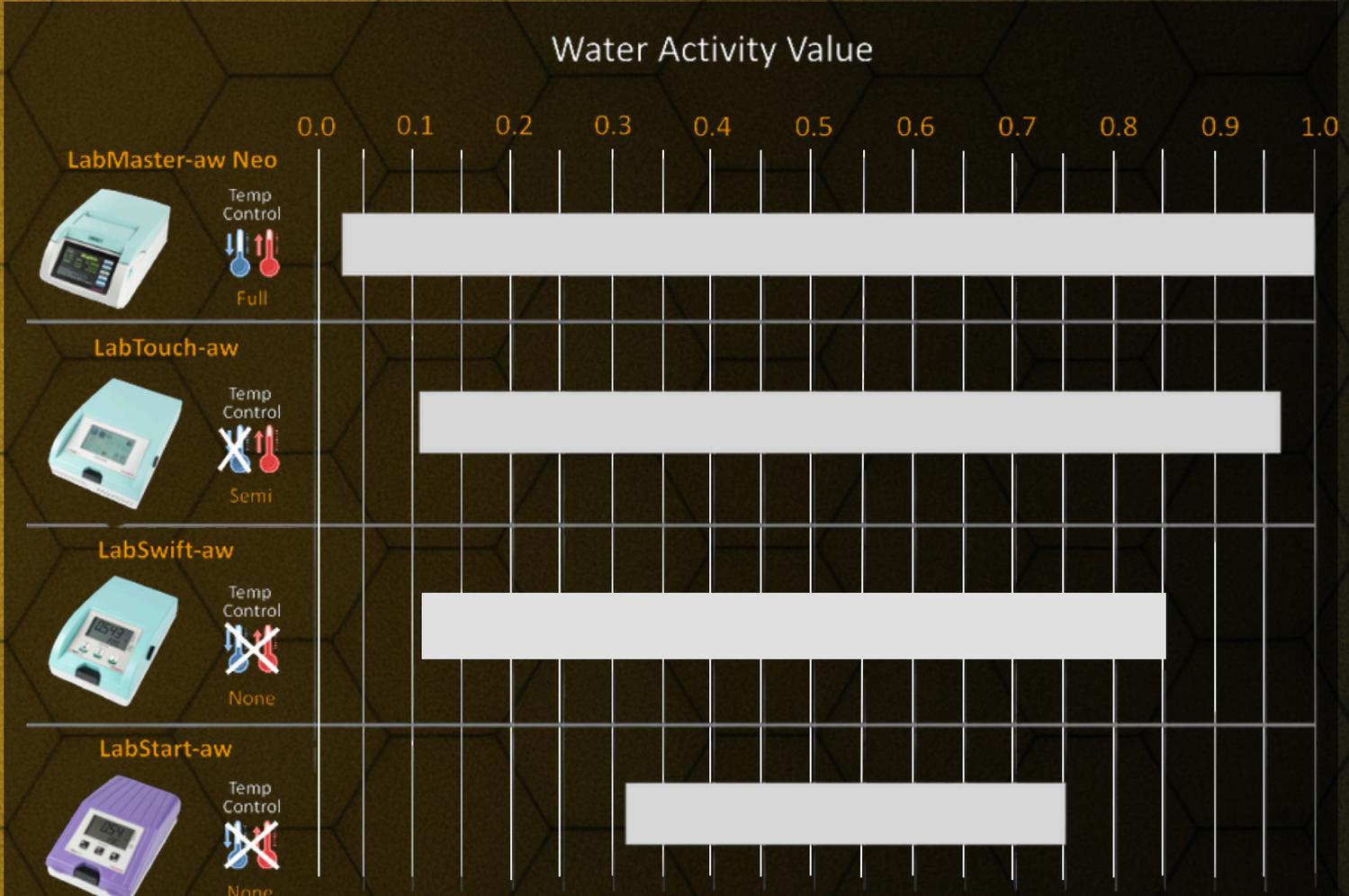


Cereals



# Product Selector Guide

## Water Activity Meter Recommended Work Range:



## Benefits of a Water Activity Meter:



Prevents spoilage



Increases shelf life



Increases product quality



Reduces cost and wastage

**Comparison Table:**

	LabStart aw	LabSwift aw	LabTouch aw	LabMaster Neo
				
Price	£	££	£££	££££
CFR 21 Part 11 Compliance	—	—	—	✓
Data storage	—	✓	✓	✓
Cooling	—	—	—	✓
Heating Control	—	—	✓	✓
Re-usable standards	✓	✓	✓	✓

**The Novasina Difference: Precision You Can Trust**

- Novasina is a pioneer in food safety and water activity measurement.
- Their goal is to give customers 100% trust and confidence in their results.
- Novasina stands for highest measurement quality, not compromises.
- Their vision is peace of mind: when our customers use Novasina, they can rely on results.



## Certifications

At Novatron Scientific we want you to have absolute confidence in the level of service you receive.

We hold the following accreditations:

