AW-600 Product Spec.

(Water Activity Analyzer)

AW-600 Water Activity Analyzer

Version 1.00

What is Water Activity?

Water activity (aw) is expressed as the ratio of the vapor pressure in a food (P) to the vapor pressure of pure water (P0). It predicts whether water is likely to move from the food product into the cells of micro-organisms that may be present.

AW-600 is a robust designed Water Activity Analyzer

The AW-600 portable Water Activity Analyzer is designed to accurate measures the vaper pressure of free water escaped from samples to the air in the test chamber to predict the condition of growth of bacteria.

Why do you need a Water Activity Analyzer?

Water activity is a measurement of the availability of water for biological reactions. It determines the ability of micro-organisms to grow. If water activity decreases, micro-organisms with the ability to grow will also decrease.

Water Activity of Common Food Products

Most food has a water activity greater than 0.95 which supports the growth of bacteria, yeast and mold. Knowing the water activity of a food is important when preparing a Hazard Analysis Critical Control (HACCP) plan. Determining the water activity of a product or ingredient is necessary when conducting a hazard analysis for many products.

Foods	**a_w**
fresh meat and fish	0.99
raw vegetables (ex: carrots, cauliflower, peppers)	0.99

raw fruits (ex: apples, oranges, grapes)	0.98
cooked meat, bread	0.91-0.98
liverwurst	0.96
caviar	0.92
moist cakes (ex : carrot cake)	0.90-0.95
sausages, syrups	0.87-0.91
flours, rice, beans, peas	0.80-0.87
salami	0.82
soy sauce	0.80
beef jerky	<0.80
jams, marmalades, jellies	0.75-0.80
peanut butter	0.70
dried fruits	0.60-0.65
dried spices, milk powder	0.20-0.60
biscuits, chocolate	<0.60

Typical Water Activity Limits for Organisms

(Content source https://www.gov.mb.ca/agriculture/food-safety/at-the-food-processor/water-content-water-activity.html)

By lowering water activity, food can be made safe to store. The table below shows water activity levels that can support the growth of particular groups of organisms.

Group of Micro-Organisms	**Minimum a_w required for growth**
most gram-negative bacteria	0.97
Staphylococcal toxin production	0.93
most gram-positive bacteria	0.90
most yeasts	0.88
Staphylococcus aureus	0.86
most moulds	0.80

Molds have minimum water activities for growth and toxin production. Most molds require a higher water activity than the minimum requirement for growth to produce mycotoxins. The table below shows a few common mycotoxins and minimum water activities for mold growth and toxin production.

Mycotoxin	Mould	Minimum a_w requirement	
		Toxin Production	Growth
Aflatoxins	Asperagillus flavus	0.83-0.87	0.82
	Asperagillus parasiticus		
Ochratoxin	Aperagillus ochreceus	0.85	0.77
	Penicillium cyclopium	0.87-0.90	0.82-0.85
Patulin	Penicillium expansum	0.99	0.81
	Penicillium patulum	0.95	

Features

1. Support both Quick mode and Equilibrium mode
2. Easy to calibrate (single point)
3. Touch panel
4. Metal housing (quickly equilibrate with ambient temperature)
5. Very easy to use
6. High airtight test chamber, high stability.
7. Built-in rechargeable battery
8. Store up to 100 records
9. Calendar and Time settings
10. Auto Power Saving

Product Specification	
Display	1.6” 128x64 mono OLED
Battery	Li-ion 1150mAh Battery
Sensor	Relative Humidity Sensor
Range of Application	0 - 40 °C 0.05 – 0.99 Aw 5 – 99 %RH
Accuracy	AWQ Mode: ±0.015 aw AWE Mode: ±0.01 aw
Read time	AWQ Mode: up to 6 min AWE Mode: 12 min to 60 min
Resolution	0.001Aw
Log	100 records
Weight	328g
Dimension	95 x 95 x 137 mm (main unit)
Working Temp.	0 – 40 degree C
Storage Temperature	-10 – 70 degree C
AC Adapter	110 - 240V, 50/60Hz
Charging input	5V, 0.5 A
Certification	CE, FCC, RoHS
Mobile carry case	Aluminum hard case

Product design and produced by Lighttells Corp. Ltd. http://www.lighttells.com