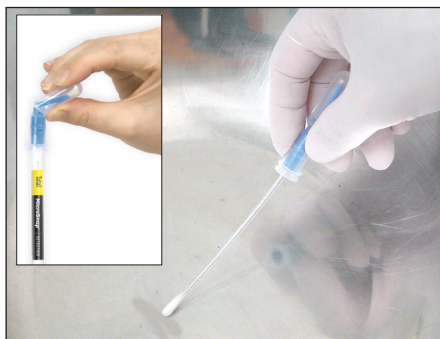


Microbial Detection in 8 Hours or Less using Bioluminescence!

Most of us are familiar with bioluminescence and relative light units (RLU) to measure adenosine triphosphate (ATP), which is used extensively throughout the food and beverage processing industry for hygiene monitoring. The MicroSnap™ methodology correlates RLU to colony forming units (CFU) as found in traditional plating and colony-counting techniques. According to



Weber Scientific president Fred Weber, “Established ATP technology has proven to be invaluable for rapid, accurate and inexpensive hygiene monitoring. The development of a microbial specific test platform using the same handheld luminometer as ATP is exciting progress in rapid microbial testing.”

MicroSnap uses a bioluminogenic (light-producing) test platform for the detection and correlation to numbers of bacteria. The test consists of an *enrichment device* containing a

specific growth medium and a *detection device* containing the bioluminogenic substrate. Light is generated when enzymes that are characteristic of specific bacteria react with specialized substrates. The light generating signal is then quantified in a sensitive EnSURE® luminometer.

Four specific microbial tests are available:

- *Escherichia coli*
- Coliforms, including *E. coli*, *Klebsiella*, *Citrobacter*, and *Enterobacter*
- Enterobacteriaceae (available very soon), including *Salmonella*, *Yersinia*, *Serratia*, *Shigella*, *E. coli*, *Klebsiella*, *Citrobacter*, and *Enterobacter*
- Total viable count (TVC), which detects Gram-positive, -negative and facultative bacteria

The *E. Coli* and coliform tests are AOAC-RI Performance TestedSM Methods (#071020). The TVC test is currently in validation studies with AOAC.

The first three test methods give results in 6 hours for enumeration and in 8 hours for presence/absence. The TVC test gives results for enumeration in 7 hours. These same-day results have many benefits:

- Raw materials
 - Prevent contaminated materials from entering production
 - Avoid hold times that shorten shelf life
 - Prevent equipment down time
 - Quickly verify certificates of analysis
- Plant environment
 - Rapidly evaluate the effectiveness of cleaning and sanitation from a microbial perspective
 - Document due diligence
 - Identify and troubleshoot in hours instead of days
- Finished Product

- Release product sooner
- Prevent recalls
- Reduce outside laboratory costs

The MicroSnap test procedure is straight-forward:

- 1) Liquid samples: Add 1 mL to the enrichment device; solid samples: Add a 1-mL 10% suspension to the enrichment device; and surface samples: Swab a 10×10-cm area with the enrichment device
- 2) Reinsert “Snap-Valve” bulb into enrichment device tube and activate
- 3) Incubate for the time required for desired detection levels (6–8 hours)
- 4) Bring enrichment device to room temperature and tap five times
- 5) Aseptically transfer 0.1 mL from enrichment to detection device
- 6) Activate detection device and mix gently.
- 7) Additional 10 minute incubation for *E. coli* or coliform formats (not required for other tests)
- 8) Insert detection device into luminometer and use RLU interpretation table to correlate results to standard methods

In addition, a positive control kit and a calibration control kit are available to provide ongoing validation and calibration checks.

As mentioned, the EnSURE instrument is capable of running multiple tests in addition to microbial detection, including:

- Environmental ATP using UltraSnap for measurement of cleaning efficiency—detects to 1.0 fmol
- Allergen cross-contamination prevention using SuperSnap—detects to 0.1 fmol
- AquaSnap for water ATP for biomass or organic residue

All test devices have the patented “Snap-Valve” construction which holds a precise amount of enrichment broth or various reagents, acting as a built-in pipet.

The EnSURE instrument stores up to 5,000 locations, 200 user IDs and 100 test plans. It also comes with “SureTrend” data analysis software to store and track results:

- The “dashboard” puts important data right in front of you
- Pre-loaded reports are customizable and makes data analysis fast and easy
- Automated emails keeps you informed

All products are made by Hygiena and distributed by Weber Scientific.