

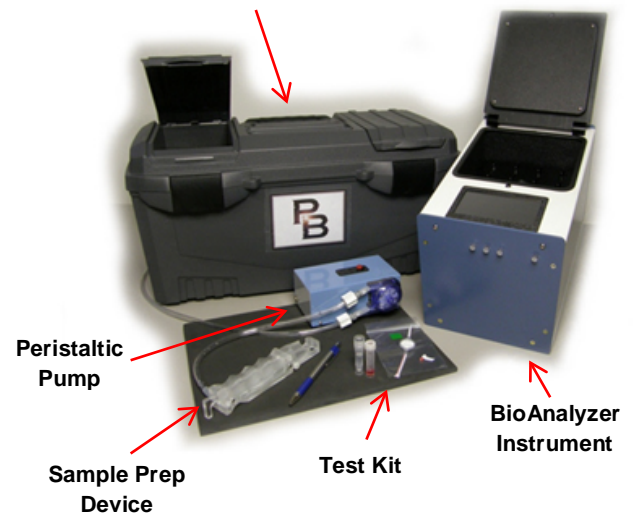
Microbial Bioanalyzer Technology

Save Time, Save Money; Increase Productivity, Increase Revenue.

Technology

The Microbial Bioanalyzer is an automated bioassay system for rapidly testing, identifying, and reporting metabolic-activity of cells, microbes, and/or organisms in fluid samples. It is an innovative combination of methods utilizing proprietary membrane filtration assay cartridges, optical sensing algorithms, and temperature controlled incubation to provide rapid detection of biological activity/contamination. This all-in-one system automatically and continuously analyzes biological material(s) – including cells, their enzymes, or other constituents thereof – and immediately reports/alerts users and stakeholders as quickly as biologically possible. With high levels of contamination, the Microbial BioAnalyzer can provide results in as little as 30 minutes; for a single bacterium- 8 hours.

Case for easy transportation and in-field testing



Key Enablements

1. Fully enclosed MF assay cartridge and culture system minimizes the risk of contamination enabling sample preparation and testing in: the field (at sampling site), mobile-lab vehicle, or companies' facility.
2. Rapid testing enables same-shift test results, improved cycle time of in-process and final product release, timely cost-saving decisions to reduce inventory expenses, and rapid identification of process/environmental contamination sources.
3. Portable, standalone instrument provides incubation, analysis, and report generation – all within one device – enabling testing to begin upon sample collection and results reported to users and stakeholders immediately upon detection/test completion.

Collect, prepare, incubate, and analyze samples without the requirement for:

- Filter funnels
- Sterilization of preparatory equipment
- Flow-hood / clean environment
- Filter membrane transfer
- Highly-trained technician
- Separate, dedicated computer
- Exposure to external environment
- Time-window constraints for test readout



This device and method is uniquely enabling for taking biological testing out of the lab and introducing it to the field - and companies - where it is of greatest value. Timely test results shorten production cycles, reduce inventory costs, free up operating capital, get product to market faster, and increase efficiency of transferring in-process work to the next stage.

Technology Advantages

Advantages	Benefits
Aseptic sample collection	<ul style="list-style-type: none"> • Reduce operational costs by reducing false positives
Rapid testing (30 min. – 8 hrs.)	<ul style="list-style-type: none"> • Free up operating capital, shorten release times, increase efficiencies, get product to market faster, quickly identify/contain/recover from a contamination event
Based on approved MF technique	<ul style="list-style-type: none"> • Consistent with regulated procedures for membrane filtration
Compact (15 lbs; 7"x8"x12")	<ul style="list-style-type: none"> • Enable testing in: the field (at sampling site), mobile-lab vehicle, companies' facility, or crowded laboratory with limited benchtop space • Increase revenue by offering in-the-field testing services
Sample volumes of 0.1mL to 1,000mL	<ul style="list-style-type: none"> • Reduce equipment/material costs by removing the need for separate/additional equipment to process varying sample volumes
Sample volume control	<ul style="list-style-type: none"> • Increase productivity by automating liquid volume control • Meet regulatory compliance requiring specific sample volume
Minimal technical skill required	<ul style="list-style-type: none"> • Reduce hiring/training costs and occurrence of human-borne errors • Eliminate test readout errors and user-interpretation uncertainties
16-sample random access testing	<ul style="list-style-type: none"> • Allows comparison studies and simultaneous sample testing • Increase efficiencies with ability to begin or end tests without interrupting other tests in progress
Reduced volume of materials	<ul style="list-style-type: none"> • Save on cost/test or provide customers with competitive cost/test pricing • Reduce operational costs by reducing the amount materials that need to be shipped, stored, decontaminated and disposed of
Colony enumeration, identification, recovery	<ul style="list-style-type: none"> • Automated presence/absence results reporting provides stakeholders with actionable information guiding timely, cost-saving decisions • Increase efficiencies with automatic semi-quantitative results reporting and quantitative results reports via visual colony counting • Subsequently isolate colonies for traditional biochemical confirmation and identification assays
Proprietary MF assay cartridge (16mm – 47mm membrane filters)	<ul style="list-style-type: none"> • Reduce labor and operational costs by reducing false positives • Decrease test time via concentration of sample constituents • Minimize risk of contamination with filtering, rinsing, culturing, and analysis all being completed in the enclosed assay cartridge. • Transition between different size membranes depending on application/test requirement(s) reducing separate equipment costs
LIMS compatible	<ul style="list-style-type: none"> • Increase productivity with cost-effective laboratory management
Self-contained incubator	<ul style="list-style-type: none"> • Reduce equipment costs by not requiring separate incubation chamber
Use standard vacuum source or portable peristaltic pump	<ul style="list-style-type: none"> • Minimal costs to implement in laboratory environment • Easily move and conduct MF tests in a mobile setting

Applications

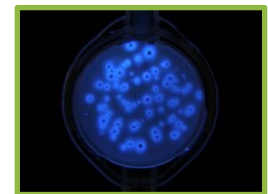
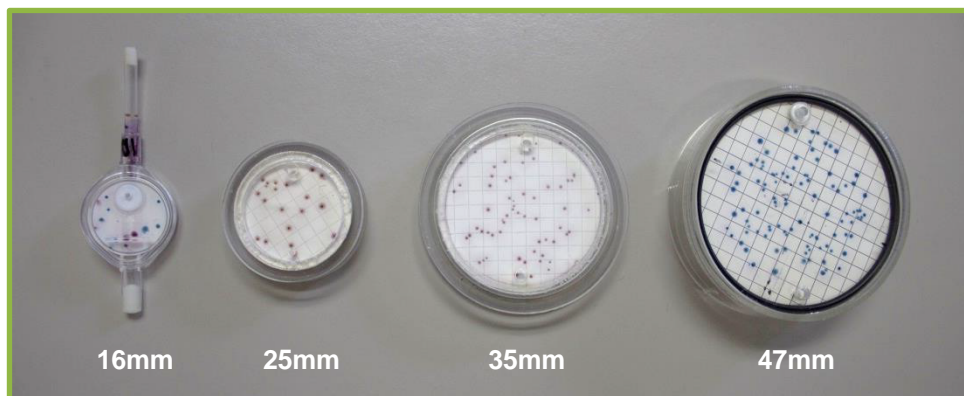
The Integrated BioAnalyzer Device and Method have extensive application in a variety of industries and subset markets.

Water	Medical	Sterility	Toxicity	Agriculture	Food/Beverage
<ul style="list-style-type: none"> • Drinking • Source • Waste & Discharge • Bottled 	<ul style="list-style-type: none"> • Infection Control • Antibiotics sensitivity • Surveillance 	<ul style="list-style-type: none"> • Pharma QA • Detoxification testing • Product testing 	<ul style="list-style-type: none"> • Homeland security • Water • Pharma • Cosmetics 	<ul style="list-style-type: none"> • Dairy • Feed QC • Biosecurity • Discharge 	<ul style="list-style-type: none"> • Process QA, QC & HACCP • Food testing • Milk/juice • Bioburden

Collect, Prepare, Culture, and Analyze

Complete the entire test– from sample collection to automated analysis – without ever opening the MF assay cartridge or exposing the sample to the external environment.

Examples of colony growth utilizing various size MF assay cartridges.



16mm MF assay cartridge
(fluorescence analysis)

Licensing Inquiries:

Please direct all licensing inquiries to:

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