Game-Changing Suite of Detection Tools for the Brewing Industry

Empowering a Proactive Approach to Quality at your Brewery

Distributed by:

INVISIBLE SENTINEL

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THE CHALLENGE

Lack of Detection Tools Combining Specificity, Speed and Accessibility

You take every precaution to maintain the quality of your brews – and test as you go to ensure your standards are met. One major challenge is the lack of immediate, accurate and actionable test information throughout the brewing process. Traditional testing methods are dated, and limited by wait times and the inconclusive results of plating, or the expense and complexity of conventional molecular technologies. These limitations make it impossible to address spoilage organisms in real-time – and can result in facility contamination, production inefficiencies and holds, or shipping beer at risk.

THE TECHNOLOGY

Proven Platform Delivers Speed, Accuracy and Sensitivity

Invisible Sentinel brew products are powered by Veriflow® – a game-changing platform technology that combines proven diagnostic principles for microbial detection and innovative, first-in-class scientific approaches. Veriflow technology offers unparalleled performance combined with ease-of-use and is utilised for rapid detection of microbes in a wide variety of matrices and industries. The technology is AOAC International Certified for foodborne pathogen detection. The brew suite of products was developed specifically for the brewing industry and has been validated and implemented by a variety of award winning, quality-centric breweries around the world.

THE SYSTEM

Simple and Cost Efficient Deployment at the Brewery

The system is comprised of a small, customized thermocycler, pre-aliquoted PCR reagent tubes, and proprietary buffers. Semi-quantitative results are obtained in less than 4 hours via hand-held disposable cassettes, and quantitative results can be tracked, stored, and exported via the Veriflow Reader. The brew products are ideally suited for both high volume and craft brewers – with a modest capital investment and affordable per-test cost. Sample collection and prep is simple, and can be completed by brewery staff with minimal training.

THE BENEFITS

Improve Quality Processes to Ensure the Integrity of Your Brand

Invisible Sentinel's suite of detection tools for the brewing industry allowing brewers to protect beer quality by providing on-site detection of spoilage organisms at any stage of production and in any style of beer. The brew products allow detection of organisms such as *Pediococcus, Lactobacillus*, Wild Yeast, *Megasphaera* and *Pectinatus* from your finished product or proactively manage levels in select brews.

Transforming the way you protect quality at your brewery

- Sample to results in under 4 hours
- Accurate, sensitive and specific for the most detrimental beer spoilers
- Simple and cost effective deployment at your brewery
- Powered by Veriflow – proven DNA signature capturing technology
- Numerous products for multiple applications and styles of beer
- Allows timely product release and proactive monitoring of in-process beer and facility conditions

Veriflow DNA Signature Capturing Technology	
DNA Amplification	Proprietary reagents eliminate need for sample purification
DNA Identification	Proprietary DNA signature detection specifically targeting beer spoilers
Sample Preparation	No enrichment or purification steps required
Visualisation of Results	Proprietary vertical flow mediated visualisation of results for easy interpretation

Product	Target	Benefits of Using the Product
brewPAL Powered by Veriflow®	For Hop-Resistant *Pediococcus* and *Lactobacillus*	"brewPAL is robust enough to detect Pediococcus and Lactobacillus, even in high bio-mass samples like yeast slurries that may be re-used for multiple generations and brews." *Mike Guilford, Production Manager, Russian River Brewing Company*
brewLAP Powered by Veriflow®	For Lactic Acid-Producing Microbes	"Bringing the brewPAL and brewLAP microbial detection system into our brewery is one of the best purchases we have made for our quality assurance testing program. The ability to detect lactic acid bacteria is very important to us in all of the beverages we produce, both alcoholic and non-alcoholic. Having data in a timely fashion allows for better decision making, resulting in improved quality, and less loss." *Rebecca Brandenburg, Director of Quality, The Lion Brewery, Inc.*
brewDEK Powered by Veriflow®	For *Brettanomyces/ Dekkera* species	"We use Invisible Sentinel's tests in our yeast management system as a critical process control point. Since we have wild and sour beers on site, along with multiple yeast strains, the speed of the assay allows us to quickly and efficiently monitor our production flow so we can detect any potential cross-contamination as early as possible." *Eli Kolodny, QA/QC Manager, Odell Brewing Company*
brewBRUX Powered by Veriflow®	For *Brettanomyces Bruxellensis*	"We really enjoy how fast and accurate the brewBRUX test helps us determine the presence of Brettanomyces in our spirit barrel-aged brands and barrel-aged blends. It gives us confidence in our ability to manage wild yeast before blending and packaging these carefully-crafted brews." *Rick Blankemeier, Director of Brewing Operations, Modern Times Beer*
brewMAP Powered by Veriflow®	For *Megasphaera* and *Pectinatus*	"Traditional micro methods for plating Megasphaera and Pectinatus can take days to weeks, which is impractical for both quality assurance purposes and the quality control of our beer. We have implemented brewMAP into our routine testing protocol in low alcohol/IBU brands alongside brewPAL to ensure our beer is free of these serious beer spoilers before it leaves the brewery." *Drew Russey, PhD, Laboratory Manager, Saint Arnold Brewing Company*
brewSTAT Powered by Veriflow®	For *Saccharomyces Diastaticus*	"Early and accurate detection of Saccharomyces diastaticus is integral to avoid unintended secondary fermentation, but more importantly for brand management and the end consumer's safety. Differentiating this wild yeast from typical brewing yeast is a challenge with traditional methods, and PCR methods can help provide a sensitive and conclusive means for identifying an issue before it's too late." *Christopher O'Connor, Director of Quality/Technical Brewing Sleeping Giant Brewing Company*

Invisible Sentinel Products Integrate Easily Throughout the Brewing Process

Raw Materials

Fermentation

Packaged Product

Bright Tanks

Facility

Test Protocol

DETECTION IS SIMPLE AND FAST

COLLECTION

Collect sample and centrifuge. Re-suspend sample using provided proprietary Buffer A.

START - MINIMAL SAMPLE PREP

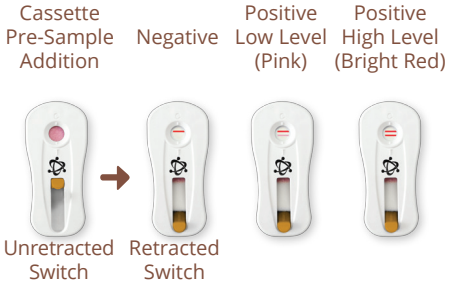
AMPLIFY

Transfer 5 µl of resuspended sample into provided PCR reagent tube. Place tube into Thermocycler and run program.

2.5 HOUR AMPLIFICATION

ANALYSE

Remove PCR Tube from Thermocycler and add proprietary Buffer B. Dispense PCR Tube contents onto test cassette window. Wait 3 minutes and retract test cassette switch to reveal test results. One line indicates negative result, two lines indicates semi-quantitative positive results.



ITEM #	DESCRIPTION	SIZE
IS1020	brewPAL Complete Test System	1 Kit, 24 tests
IS1028	brewDEK Complete Test System	1 Kit, 24 tests
IS1022	brewBRUX Complete Test System	1 Kit, 24 tests
IS1034	brewMAP Complete Test System	1 Kit, 24 tests
IS1042	brewLAP Complete Test System	1 Kit, 24 tests
IS1057	brewSTAT Complete Test System	1 Kit, 24 tests
IS0904	Veriflow Loading Tray	1 Unit
ISTC002	Veriflow Thermocycler	1 Unit
ISRD001	Veriflow Reader	1 Unit

For more information or to order, please contact us on **(02) 9882 3666** or at **orders@amsl.com.au**

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