

# HIGH-THROUGHPUT ANTIBIOTIC DETECTION FOR SEAFOOD

MaxSignal® HTS  
Automated Solution

  
**PerkinElmer**®  
*For the Better*





# THE IMPORTANCE OF EXPORTING SAFE SHRIMP

Shrimp aquaculture: As one of Asia's fastest growing markets, with 10% growth CAGR, it's a trend that shows no sign of slowing down. To meet this demand, some producers are improving yields through use of antimicrobial compounds.

At the same time, regulations stipulate that seafood processors need to test each outgoing lot to the country of export's standards for antibiotics, including nitrofurans and chloramphenicol. And that's where our **MaxSignal® HTS automated solution** comes in.

## Enhanced Productivity, Same-Day Results

The MaxSignal HTS automated solution is the industry's first end-to-end workflow platform that includes simple, comprehensive multiplexed sample prep, ready-to-use reagents and standards, and a state-of-the-art automated, high-throughput detection platform. Put that together with leading service and support, and you have a five-in-one, same-day detection solution to ensure safe export of shrimp – to any seafood market, anywhere in the world.

## 5-IN-1 SIMULTANEOUS EXTRACTION METHOD

MaxSignal® HTS Nitrofurans and Chloramphenicol ELISA Kit assays are designed and developed specifically for the aquaculture industry, delivering a simple, simultaneous, 5-in-1 sample preparation method for AOZ, AMOZ, SEM, and AHD nitrofurans, as well as chloramphenicol. This speeds testing and reduces cross-contamination risks while requiring fewer reagents and hands-on technician time.

When used with the DS2 Automated Laboratory ELISA system, analysis is automatic, providing highly accurate and consistent results that enable faster, more informed decisions for incoming seafood lots. Plus, the integrated bar-code scanner provides excellent sample traceability, and data can be easily linked to LIMS for seamless results recording and sharing.

- **Save money** – 5-in-1 method requires one-fifth the organic solvents for extraction
- **Faster detection** – less than 90 minutes from sample extract to results
- **Easy, highly accurate sample preparation**

## SEAFOOD SAFE FROM NITROFURANS

Nitrofurans are antibiotics frequently used in animal production due to their highly efficient antibacterial properties. Intense commercial aquaculture resulted in stressors that increased the prevalence of pathogens in aquatic environments, and many producers chose to use veterinary medicines to maintain healthy stocks, prevent and treat disease outbreaks, and maximize yield. But the parent compounds and their metabolites have been shown to have carcinogenic and mutagenic characteristics, which led to the banning of nitrofurans for the treatment of animals used for food production. In 1993, the EU banned the nitrofurans furaltadone, nitrofurantoin, and nitrofurazone for use in animals used as sources of food, and in 1995, the use of furazolidone was also banned.

The MaxSignal® HTS Nitrofuran ELISA Kits provide competitive ELISA solutions for the quantitative analysis of each nitrofuran in shrimp.

- Offers rapid and cost-effective extraction methods for various samples
- Simultaneous extraction protocol for analysis of AOZ, AMOZ, SEM, AHD, and CAP
- Low detection limit of 0.05 ppb



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## FAST SCREENING FOR CHLORAMPHENICOL

Chloramphenicol is a broad-spectrum antibiotic that's frequently employed in animal production for its excellent antibacterial and pharmacokinetic properties – but in humans, it leads to hematotoxic side effects. It's used as a prophylactic and therapeutic agent in intensive shrimp farming to prevent disease outbreaks and to treat infected shrimp. Historically, chloramphenicol residues have been determined either by radioimmunological analysis or gas chromatography. However, enzyme immunoassays (ELISA) show considerable advantages over conventional methods. Radioactive materials are no longer required, and the processing time is considerably less than the gas chromatographic method.

The MaxSignal® HTS Chloramphenicol ELISA Kit is a competitive enzyme immunoassay for the quantitative analysis of chloramphenicol in shrimp. This kit delivers:

- Fast, cost-effective extraction methods for various samples
- Simultaneous extraction protocol for the analysis of CAP and all four Nitrofurans (AOZ, AMOZ, SEM, and AHD)
- Low detection limit of 0.05 ppb





# RELIABLE, ACCURATE WALKAWAY AUTOMATION

Designed with full walkaway capability, the DS2 Automated Laboratory ELISA system can quickly and easily process two 96-well microplates and up to 192 samples in less than 90 minutes. Plus, it features the most intuitive control system available, including simple chain of custody and instrument diagnostics.

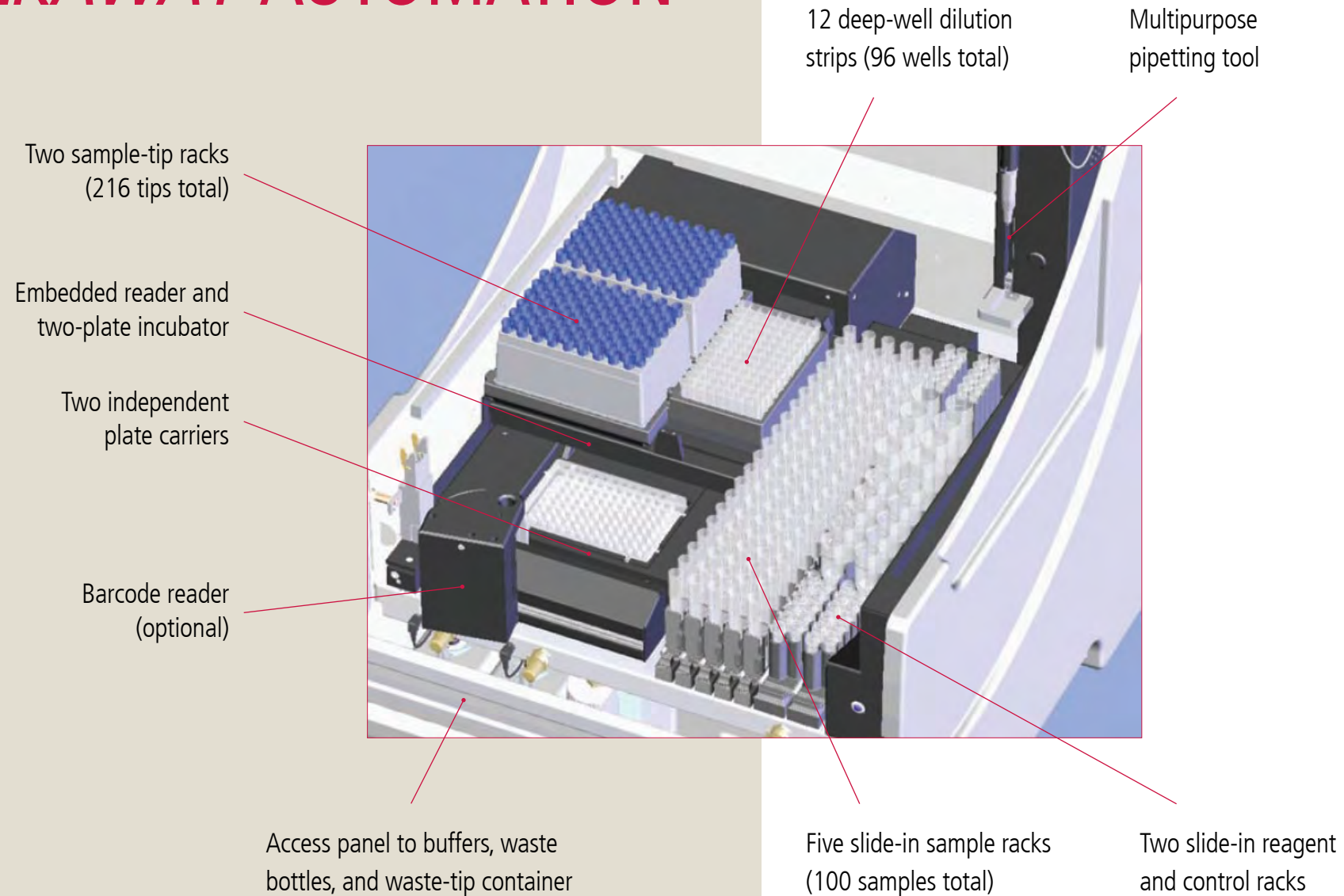
This system delivers no-fuss, sample-in/results-out automation of microplate assays, taking charge of the entire workflow:

- Sample dilution and distribution
- Incubation, washing, and reagent dispensing
- Reading with automatic data reduction and quality control
- Automatic barcode scanning

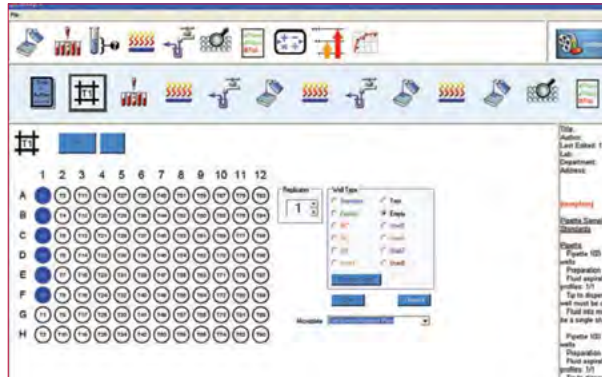
Bottom line, the DS2 Automated Laboratory ELISA system delivers everything you need to ensure rigorous, repeatable analysis and accurate results.



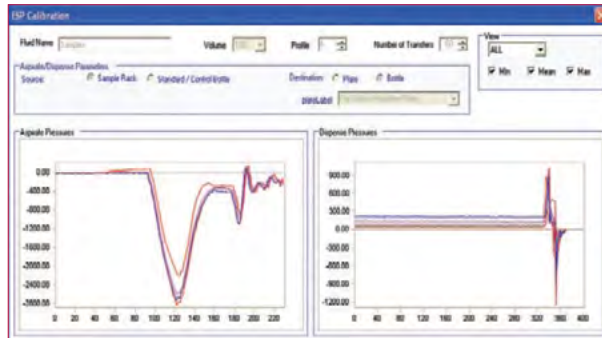
# RELIABLE, ACCURATE WALKAWAY AUTOMATION



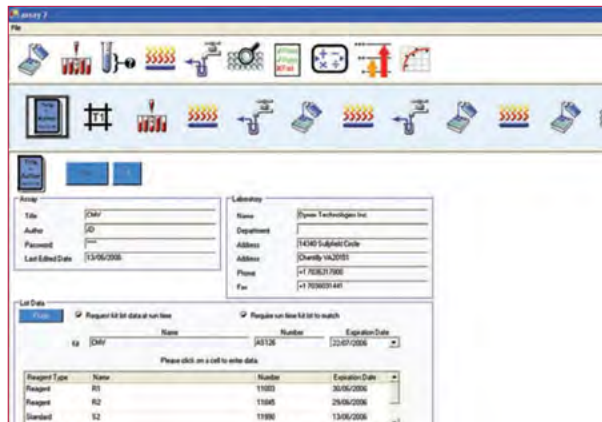
# POWERFUL SOFTWARE THAT INTUITS YOUR NEEDS



Assay Writer Technology



ESP Technology



Recording Technology

Feature-rich and groundbreaking in its process simulation and ease of use, DS-Matrix™ software allows you to rapidly integrate automation in the lab with confidence. The simple graphical interface means that any lab technician can use the DS2 Automated Laboratory ELISA system with minimal training. With DS-Matrix software, you get:

## ASSAY WRITER

Drag-and-drop icons walk you through the programming process, prompting you step by step, making assay setup easy. And if you miss a critical step? The Assay Writer lets you know before you move on.

## PROCESS SIMULATOR

No need to waste reagents or consumables: the system shows you a full animation of the assay steps you've outlined. If you want to adjust the assay parameters, the system shows you how it will work before you implement the change.

## PROCESS TIMELINE

Once you begin running your assay, you know exactly where you are and how much time is left.

## ESP

Patent-pending technology that provides in-process verification of critical fluid and sample transfer.

## RECORDING

The system enables recording and assurance of lot-specific data.

# THE LITTLE THINGS SET IT APART

The easy-to-use DS2 Automated Laboratory ELISA system is designed for efficiency and reliability, with few moving parts – one multifunction robot arm does everything from pipetting to operating the barcode reader. Plus, the system's vertical design and patent-pending multiplate carrier save space, enabling maximum consumables storage in minimal benchtop footprint.



With the DS2 Automated Laboratory ELISA system, you get:

- 216 sample tips
- 96 dilution vessels in 8-way strips
- 20 reagent tips
- 8 large and 10 medium reagent bottles
- 24 standard/control bottles

Plus, you can set the instrument to prompt you if you need to take any immediate actions such as adding reagents or wash fluids. You can even have the DS2 Automated Laboratory ELISA system deliver an audible alarm or send you an email outlining any problems. And integrated self-diagnostics make troubleshooting easy – you can even send our technical support team a problem description from within the application, with system information attached automatically.



PART NO.	DESCRIPTION
FOOD-4001-01	MaxSignal® HTS Chloramphenicol ELISA Kit
FOOD-4002-01	MaxSignal® HTS Furazolidone (AOZ) ELISA Kit
FOOD-4003-01	MaxSignal® HTS Furaltadone (AMAZ) ELISA Kit
FOOD-4004-01	MaxSignal® HTS Nitrofurazone (SEM) ELISA Kit
FOOD-4005-01	MaxSignal® HTS Nitrofurantoin (AHD) ELISA Kit
DS2010	DS2 Automated Laboratory ELISA

For more information visit [www.perkinelmer.com](http://www.perkinelmer.com)

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