

## Get the complete picture

Testing solutions for poultry

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# Testing solutions that can keep up with your poultry production

In the fast-moving, high-volume, low-margin business of poultry production, testing can eat into productivity and profitability.

The need for robust testing programs at every step of the journey is crucial; from primary production and processing, to the point of release to market, and ongoing environmental monitoring.

From farm to fork, our complete solutions for poultry testing streamline workflows and shorten time-to-result, helping to boost productivity and profitability, without compromising on safety or accuracy. Benefit from:

- Complete workflows that cover the preparation, enrichment, detection, enumeration, and confirmation steps.
- Products that meet the formulations stated in the relevant ISO, FDA-BAM, and USDA-FSIS reference methods.
- Alternative, validated methods with shorter time-to-result, including chromogenic media workflows and real-time PCR solutions.
- A portfolio of real-time PCR-based poultry species detection and quantification solutions for authenticity testing.





## Pathogen risk and quality indicator management in the poultry sector

Pathogen risk management and quality control is central to the success of any poultry operation – failing to monitor flocks, processes, products, and the environment for dangerous microorganisms can result in consumer safety concerns, as well as costly facility shutdowns and product recalls.

Control measures focus on eliminating or reducing risk at every stage of the production journey:

- 1. **Primary production:** Pathogens naturally present in the flock and poultry farm have the potential to survive into processing.
- 2. **Processing:** The slaughtering, de-feathering, evisceration, rinsing, chilling, portioning, and packaging of poultry introduces multiple possible routes of contamination, via handling and equipment. Microorganisms not effectively eliminated during primary production can also proliferate during processing and end up in the finished poultry products.
- **3.** The environment: Alongside the product itself, poultry production comprises multiple points of possible environmental contamination; environmental monitoring consists of tracking pathogens and other microbes in primary production and processing areas and equipment.

#### Pathogens of interest

Salmonella is the most critical pathogen in the poultry sector to test for and needs to be monitored throughout the production process. The serotypes Salmonella Enteritidis and Salmonella Typhimurium are of most concern due to their ability to cause infection in humans, their prevalence, and their increasing resistance to antibiotics. For these reasons, these serotypes are regulated in some territories - as seen with the USDA National Poultry Improvement Plan (NPIP), the European Regulation EC 1086/2011, and the KPIs set up by USDA:FSIS.

The multiple other pathogens are also important to test for within poultry production. For example, *Campylobacter* is ubiquitous in poultry farms, being found in soil, water, surfaces, and air.

Poultry is also a natural potential carrier of *Listeria* species, including *Listeria monocytogenes*, which can survive and multiply in flocks, on processing equipment, and in finished products, and can be challenging to detect in samples with high background flora.

The monitoring and the enumeration of quality indicators such as *E. coli*, Enterobacteriaceae or coliforms, is also important and can help to indicate hygiene levels in the environment, unmasking potentially improper processing and poor sanitation in the processing environment.

## The range of challenges faced at every stage of production and testing

	Key Testing Area Microbio		Microbiologicial Risk	Sample Types	Challenges	
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<b>3</b>				Rinse water	Answers needed in a short timeframe to enable rapid decisions. Managing the overall microbial safety and	
				Raw poultry meat (unprocessed)	quality of products throughout processing. Levels of <i>Salmonella</i> , including specific serotypes, are needed to inform decision making.	
		In process and finished products		Ready-to-cook/eat/ heat poultry products (processed)	Answers needed in a short timeframe to ensure maximum freshness and quality. Recovery of target organisms impacted by processing techniques such as heating and addition of spices.	
				Eggs and egg products (derivatives)	Diversity and challenging nature of matrices. Just-in-time stock management of raw and processed materials.	
		Environmental		COOO Surface sampling	Answers needed in a short timeframe to ensure maximum freshness and quality. Answers needed in a short timeframe to maintain production and prevent production shutdowns.	
					High levels of background flora.	



### Your challenges, our solutions Whatever your production challenge, there's a Thermo Scientific Solution to help

Thermo Fisher Scientific provides a total and comprehensive portfolio of solutions for microbiology analysis of poultry samples. From reference methods, to validated rapid, chromogenic culture media workflows and PCR-based alternative approaches, we offer everything to rapidly and reliably test:

- Pathogens
- Quality indicators

#### Smart solutions for your current and future testing needs

#### Flexible

Mix and match to configure the workflow that best suits your laboratory's techniques and matrices.

#### Reliable

Thermo Scientific<sup>™</sup> SureTect<sup>™</sup> and SureCount<sup>™</sup> PCR Assay Methods and Thermo Scientific<sup>™</sup> Precis<sup>™</sup> Methods are ISO 16140-2:2016 validated by AFNOR and/or MicroVal Certification and/or AOAC certified according to the Performance Tested Methods (PTM) or Official Methods<sup>SM</sup> of Analysis (OMA) certification scheme.

#### Benefit from:

- Complete and flexible workflow solutions from enrichment to confirmation with a choice of formats to suit your laboratory.
- Extensive validation of our PCR and chromogenic culture media-based Precis Methods for a wide range of food and environmental sample types.
- Short time-to-results: results in under 24 hours using the SureTect PCR Assay Methods, or in under 48 hours using the Precis Detection and Enumeration Methods.
- Simultaneous Salmonella detection and serotyping in under 24 hours with the SureTect Salmonella species, Typhimurium Enteritidis and Multiplex PCR Assay and SureTect Salmonella Infantis PCR Assay.
- Simultaneous Salmonella detection, quantification and serotyping in around 8 hours with the SureCount Salmonella species, Typhimurium and Enteritidis Multiplex PCR Kit Method.

#### Typical workflows for Thermo Scientific Alternative Methods



- Full portfolio of products for the complete workflow from enrichment to detection and confirmation.
- Solutions to suit every lab, from molecular to culture media and rapid confirmation options.

### Problem solved: How Thermo Scientific Solutions can help

#### Your challenges

#### **Our solutions**

Q <sub>o</sub>	Different testing at multiple processing steps can complicate workflows	Our solutions are flexible: can be configured to meet your needs, covering enrichment, detection, serotyping and confirmation, and are validated over a wide range of matrices.
Ō	Waiting for results slows throughput	SureTect PCR Assay Methods provide results in under 24 hours. Enumeration results for <i>Salmonella</i> spp. <i>S. Typhimurium</i> and <i>S. Enteritidis</i> are available in under 8 hours with the SureCount Salmonella Multiplex PCR Kit method.
*	<i>Salmonella</i> serotype tracking is fundamental in poultry, but it drains productivity	The SureTect Salmonella Multiplex PCR Kit method detects all Salmonella species and simultaneously differentiates between S. Enteritidis and S. Typhimurium in under 24 hours. Additionally, the SureTect Salmonella Infantis PCR Assay can be used to simultaneously detect this additional serotype in the same PCR run. Quantification and serotyping of Salmonella can also be achieved in under 8 hours with a single PCR test by using the SureCount Salmonella Multiplex PCR Kit.
<b>(</b>	Regional regulatory differences put compliance at risk	Culture media and PCR-based Thermo Scientific Alternative Methods are validated according to ISO 16140-2:2016 (by AFNOR or MicroVal), AOAC PTM, or AOAC OMA.
**	Challenging matrices threaten confidence in results	Our solutions are validated with the most challenging poultry matrices, including primary production samples, intermediate and finished poultry products, and production environment samples.
2	Flexible formats required to suit your lab's evolving needs	Choose from dehydrated culture media and supplements or ready-to- use or ready-to-hydrate culture media formats. Agar plates can also be purchased ready-to-use for maximum convenience or prepared in-house from dehydrated culture media and supplements as needed.
	Verification of origin and authenticity of poultry	In collaboration with Health in Code, S.L., we offer a broad portfolio of real-time PCR-based poultry species detection and quantification solutions. These highly sensitive Thermo Scientific <sup>™</sup> RapidFinder <sup>™</sup> Poultry and Chicken ID Kits enable detection to below the officially required limits.

#### Choose from a comprehensive range of Thermo Scientific Solutions to screen, track, and analyze the targets that matter to your business

Target	Method	Technology	Species detected	Validation**
Salmonella, E.coli (BPW),	Remel <sup>™</sup> Buffered Peptone Water (Bird Rinse) Learn more »	Prepared Media	<i>Salmonella</i> enterica, <i>E.coli</i> spp., <i>Campylobacter</i> jejuni	
Campylobacter (nBPW)	Remel <sup>™</sup> nBPW w/1% Peptone (Bird Rinse) <u>Learn more »</u>	Prepared Media	Salmonella enterica, E.coli spp., Campylobacter jejuni	
	Salmonella Precis <sup>™</sup> Detection Method <u>Learn more »</u>	Culture media	Salmonella spp.	AFNOR »
	SureTect <sup>™</sup> Salmonella Species, Typhimurium and Enteritidis Multiplex PCR Assay <u>Learn more »</u>	PCR	Salmonella Enteritidis, Salmonella Typhimurium and Salmonella spp.	AFNOR » AOAC-PTM »
Salmonella	SureCount <sup>™</sup> Salmonella species, Typhimurium and Enteritidis Multiplex PCR Kit <u>Learn more »</u>	PCR	Salmonella Enteritidis, Salmonella Typhimurium and Salmonella spp.	AOAC-PTM »
	SureTect <sup>™</sup> Salmonella species PCR Assay <u>Learn more »</u>	PCR	Salmonella spp.	AFNOR and MicroVal » AOAC-PTM & OMA »
	SureTect <sup>™</sup> Salmonella Species, Typhimurium and Enteritidis Multiplex Flex PCR Assay <u>Learn more »</u>	PCR	Salmonella Enteritidis, Salmonella Typhimurium and Salmonella spp.	AFNOR »
	SureTect <sup>™</sup> Salmonella Infantis PCR Assay <u>Learn more »</u>	PCR	Salmonella Infantis	
	<i>Brillianc</i> e <sup>™</sup> CampyCount Agar <u>Learn more »</u>	Culture media	Campylobacter spp.	MicroVal »
Campylobacter	SureTect <sup>™</sup> Campylobacter jejuni, C. coli and C. Iari PCR Assay <u>Learn more »</u>	PCR	Campylobacter jejuni, Camplobacter coli and Campylobacter lari	AOAC-PTM »
	Listeria Precis <sup>™</sup> (Enumeration Method) Learn more »	Culture media	Listeria monocytogenes	AFNOR »
l isteria	Listeria Precis <sup>™</sup> (Detection Method) Learn more »	Culture media	Listeria monocytogenes	<u>ISO 16140-2 »</u>
Listona	SureTect <sup>™</sup> Listeria monocytogenes PCR Assay <u>Learn more »</u>	PCR	Listeria monocytogenes	ISO 16140-2 » AOAC-PTM & OMA »
	SureTect <sup>™</sup> Listeria species PCR Assay <u>Learn more »</u>	PCR	<i>Listeria</i> spp.	<u>AFNOR »</u> <u>AOAC-PTM &amp; OMA »</u>
	SureTect <sup>™</sup> E. coli O157:H7 PCR Assay <u>Learn more »</u>	PCR	E. coli O157:H7	AOAC-PTM » AFNOR »
<i>E. coli</i> O157:H7 and other STEC	SureTect <sup>™</sup> Escherichia coli O157:H7 and STEC Screening PCR Assay <u>Learn more »</u>	PCR	<i>E. coli</i> O157:H7 and STEC serotypes O26, O45*, O121*, O145, O103 and O111	AFNOR »
	SureTect <sup>™</sup> Escherichia coli STEC Identification PCR Assay <u>Learn more »</u>			AOAC-PTM »
Avian DNA	n DNA RapidFinder <sup>™</sup> Poultry ID Kit <u>Learn more »</u>		Gallus gallus (chicken), Meleagris gallopavo (turkey), Anas platyrhynchos (duck), Struthio camelus (ostrich), Anser anser (goose)	
Chicken DNA RapidFinder <sup>™</sup> Chicken ID Kit Learn more »		PCR	Gallus gallus (chicken)	

\*These serogroups, 045 and 0121, are covered by AOAC-PTM certification only. \*\* In the case of AFNOR and MicroVal validation, this is in accordance with ISO 16140-2:2016



#### Learn more at thermofisher.com/poultry-testing-solutions

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