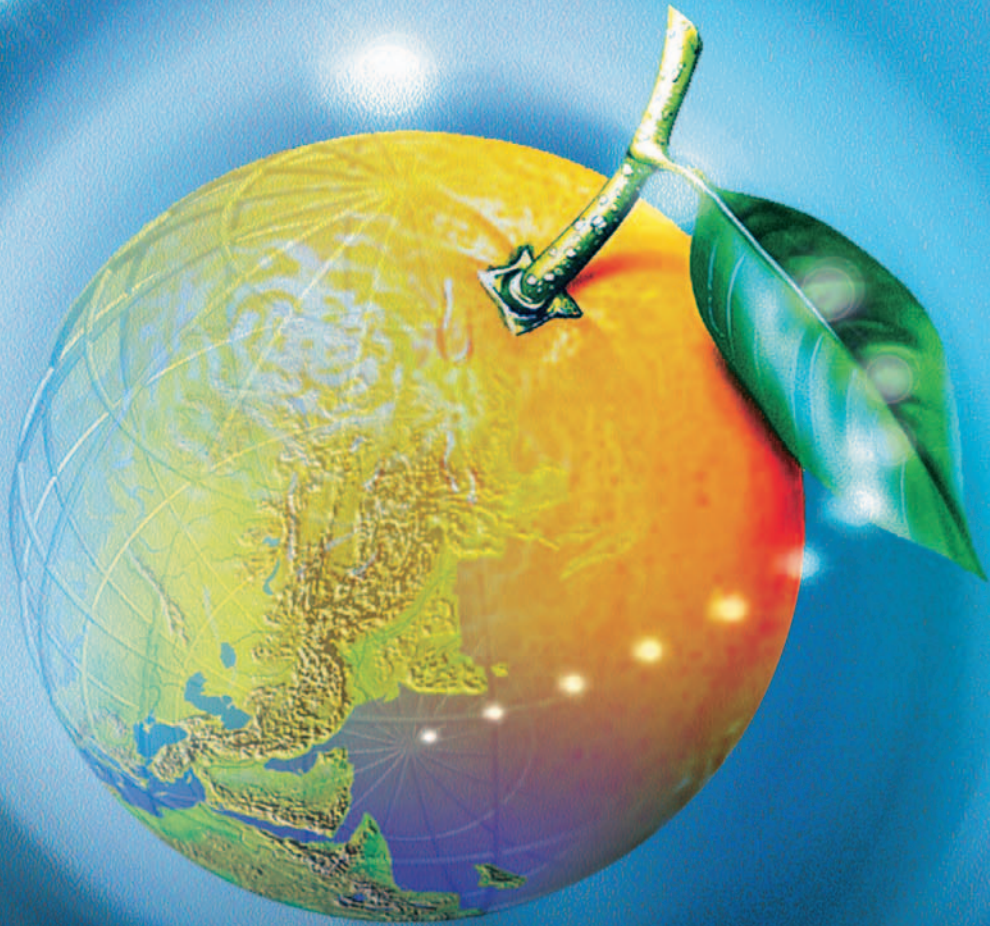


## Thermo Scientific for Food Safety



From ensuring the quality and safety of raw ingredients, to testing for consistency and conformity in processed food, beverages and their packaging, Thermo Fisher Scientific has the expertise and comprehensive product offering to help you protect your customers, and your reputation, anywhere in the world.



## **Protecting the World's Food Supply**

The food market is increasingly a global market, with distribution of products around the world. The global food production industry currently exceeds \$500 billion, and is growing every year. Ensuring food safety and conformity while meeting unique regulatory requirements of individual countries is an ongoing challenge for food producers. With representatives in nearly every country around the world, Thermo Fisher Scientific understands both local and international regulations and is uniquely positioned to work with you as you tailor your processes to address these standards.

No matter what stage of production your food products are in, we are there to help you meet your commitment to food safety.

## Comprehensive, Integrated Solutions; Knowledgeable Support

No other provider of food safety solutions can match the breadth of the Thermo Scientific product line. We're confident that our comprehensive product offering will meet your exacting requirements, every step of the way.

But products are only part of the picture. Our goal is to become your partner in laboratory analysis and food processing safety by providing integrated solutions, comprehensive application support, and by linking the entire workflow with an integrated data handling system that will make your processes more efficient than ever before.

We're committed to supplying instruments of high accuracy and high sensitivity, driven by powerful, easy-to-use software, and backed by world-class service and support from experts with a deep understanding of the complex and challenging demands that you face within the food safety industry.



## Reliable Technologies Every Step of the Way

Our food safety team will bring together a family of Thermo Scientific technologies that you know and trust, and the ability to link your data assets quickly and easily.

Our laboratory portfolio for cell culture research includes growth chambers, incubators, ultra-low temperature refrigerators, and bio-safety cabinets. We offer centrifuges ranging from small bench models up to large capacity special centrifuges that will allow you to simplify the sample preparation process and accurately control separation requirements. You can also be assured that our centrifuges provide the most complete bio-safety protection in the industry.

Thermo Scientific Nicolet™ series FT-IR spectrometers, Raman spectrometers and microscopes are global leaders in infrared and Raman analysis. These spectroscopy instruments provide quick qualitative and quantitative assays in food analysis, and can analyze and study multi-layer packing material.

Metal contamination in food products continues to be one of the most prevalent concerns in the industry. The complete portfolio of Thermo Scientific atomic absorption spectrometers and the highly innovative ICAP 6300 series lead the way in the identification of metallic elements in a wide variety of food stuffs.

Thermo Scientific mass spectrometers have been leaders in their field for many years, beginning with the world's first commercial LC/MS systems, extending to the first triple quadrupole MS/MS systems, and today providing the innovative LTQ Orbitrap™ Hybrid high-resolution mass spectrometer. Food laboratories around the world depend on the excellent performance and sensitivity of our instruments, which meet or exceed specificities required by today's most demanding methodologies, while also offering the benefits of high-throughput screening.

When it comes to managing your most valuable asset, the data being generated in your laboratories, there is no more trusted brand than Thermo Scientific. We offer market-leading laboratory informatics solutions: LIMS (Laboratory Information Management Systems), Chromatography Data Systems (CDS), and spectroscopy software to deliver the comprehensive solutions you can count on to advance your science, increase efficiency and improve your bottom line.



# Solutions for Laboratories

From sample treatment, extraction and storage, to high-sensitivity identification, detection and analysis, we provide technologies that are widely used in trace analysis in food such as detection of pesticide residue, antibiotics, pigments, analysis of heavy metals, and detection of pathogenic microbes, bacteria and virus. You can be assured that we will understand and supports every step of your work flow.



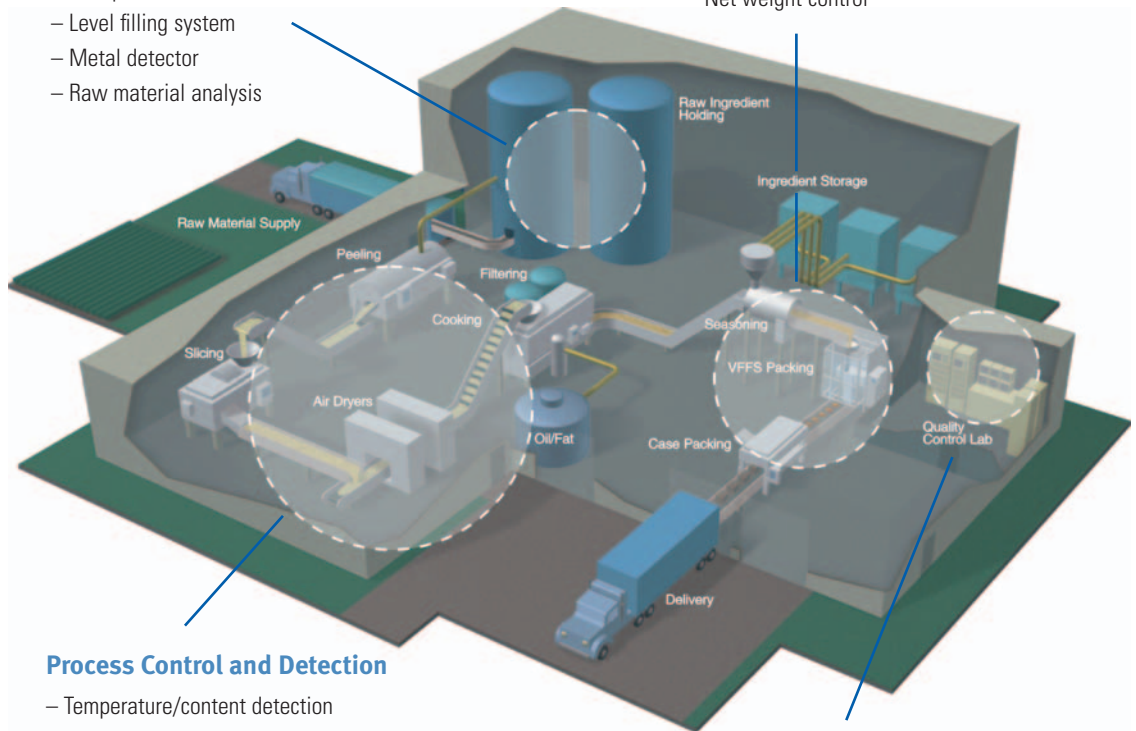
# Solutions for the Food Industry

We also provide a wide range of Thermo Scientific process instruments and accessories for various food process applications. From production to consumption, our products can be used in every step of your process. From food component treatment to final packaging and assay, we can help you set up a solid safety guarantee between food production and consumers.



## Raw Material Introduction and Inspection

- Bulk process control
- Level filling system
- Metal detector
- Raw material analysis



## Process Control and Detection

- Temperature/content detection
- On-line CO<sub>2</sub> content detection
- X-ray foreign matter detection

## Package Detection and Transport

- Metal detector
- X-ray foreign matter detection
- Filling level control
- Net weight control

## Quality and Laboratory Information Management

- Refrigeration/centrifuge/water purification system
- Chromatograph/mass spectrometer/spectral analysis
- pH meter/automated photometric analyzer
- LIMS (Laboratory Information Management System)
- GRAMS spectral data system
- CDS (Chromatography Data System)



# Instrument Selection Guide in Food Safety Applications

Technique	In the Laboratory					Out of the Laboratory	
	Screen and/or confirm potential harmful doped hidden troubles, such as pigment, hormone, pesticide residue, and forbidden antibiotics	Screen and/or confirm presence heavy metals and other harmful compounds in raw material and food	Microbe, bacteria and virus detection	Environmental water quality, soil and drinking water analysis	Food irradiation detection	Food industry: Research and development/quality management	Food industrial process, packaging, weighing, and harmful matter detection
Pipette	X	X	X	X	X		
Tips and microplate plastic consumables	X	X	X	X	X		
Reagent and consumables	X	X	X	X	X		
Cell culture equipment	X		X	X	X		
Centrifuge series	X		X	X	X		
Vacuum concentration and freeze-drying system	X			X			
KingFisher™ magnetic beads purification system	X		X	X			
Biosafety cabinets	X		X	X	X		
Ultra-low temperature refrigerator	X		X	X	X		
Automated low temperature storage system	X	X	X	X	X		
Laboratory water purification system	X	X	X	X	X		
Laboratory high temperature furnace/muffle furnace	<b>Autoclave</b>	X	<b>Autoclave</b>	X	<b>Autoclave</b>		

## Sample Analysis

Microplate reader	X		X				
Fluorescence /chemiluminescence plate reader	X		X				
GC	X			X			
GC/MS	X			X			
HPLC	X			X			
LC/MS <sup>n</sup>	X			X			
Atomic absorption spectrometer AAS		X		X			
Plasma emission spectrometer ICP		X		X			
Plasma spectrometer ICP-MS		X		X			
DFS high resolution magnetic mass spectrometer	X			X			
DELTA isotope ratio mass spectrometer	<b>X (dioxins)</b>			X			
X-ray spectrometer		X					X
Fourier transform infrared spectrometer FT-IR						X	X
Fourier transform near-infrared spectrometer FT-NIR						X	X
Raman spectrometer						X	X
UV-Visible spectrophotometer	X			X			
Harshaw TLD thermoluminescence series radiation measurement system					X		
Konelab automatic luminosity analyzer		X		X			
Orion/Eutech series analyzer pH/conductance/dissolved oxygen/turbidity meter/COD measurement	X	X	X	X			

## Production Process Control and Detection

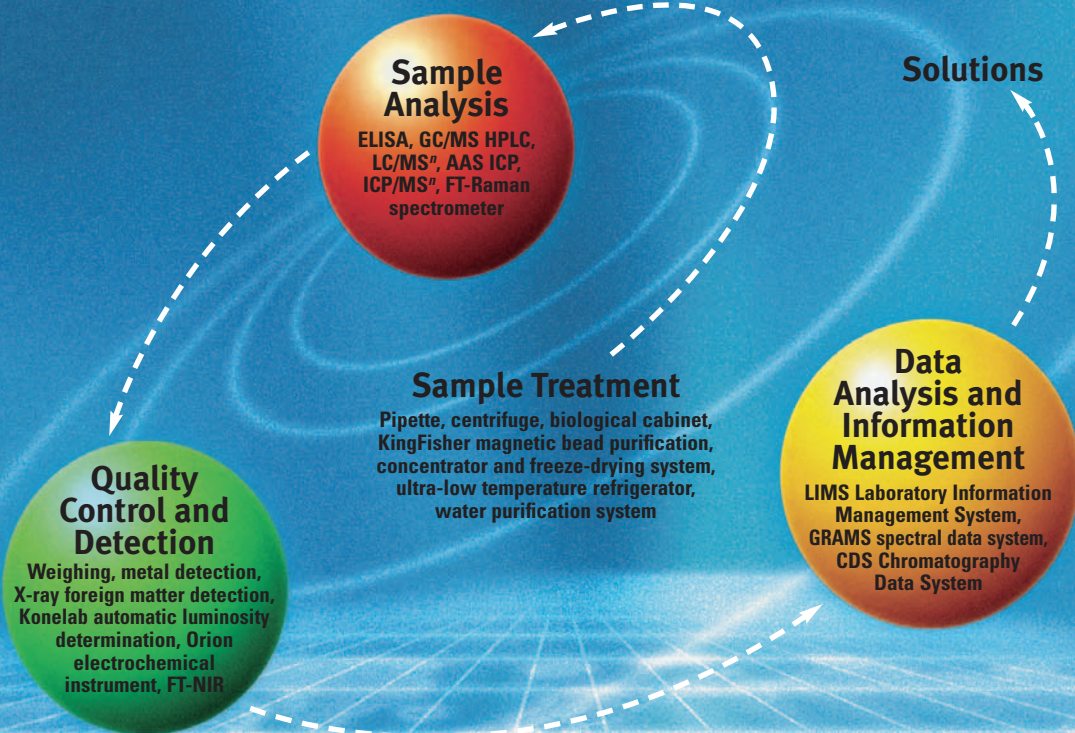
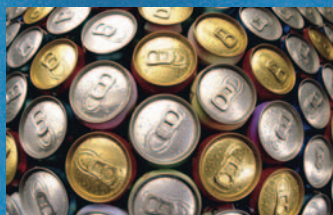
Checkweigher device							X
Metal detector							X
X-ray foreign matter detection							X
On-line water content detection							X
On-line CO <sub>2</sub> content detection							X
Filling level detection							X
Container pollutants detection system							X

## Data Analysis and Information Management

LIMS Laboratory Information Management System	X	X	X	X	X	X	X
GRAMS spectral data system	X	X		X		X	X
CDS Chromatography Data System	X	X		X			X

# Thermo Scientific – Comprehensive Solutions for Food Safety

- Commitment for safety
- Special technical experience
- Complete solutions
- Excellent product line
- World-class service and support



In addition to these offices, Thermo Fisher Scientific maintains a network of representative organizations throughout the world.

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