

# **Global Molecular Methods For Food Safety Testing Market Size study, by Technology (Polymerase Chain Reaction (PCR), Immunoassay), by Product (Instrument, Reagents & Consumables) and Regional Forecasts 2022-2032**

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## **Abstracts**

Global Molecular Methods For Food Safety Testing Market is valued at approximately USD 2.41 billion in 2023 and is anticipated to grow with a steady CAGR of more than 8.90% over the forecast period 2024-2032. Foodborne illnesses continue to threaten public health and the global food supply chain, prompting rigorous regulatory actions and increased consumer demand for transparency. In this context, molecular methods for food safety testing have revolutionized the detection of pathogens, allergens, and genetically modified organisms. These sophisticated techniques, especially polymerase chain reaction (PCR) and immunoassay platforms, allow rapid, accurate, and sensitive identification of microbial contamination. With the global food industry striving for zero-defect manufacturing and strict compliance, the adoption of molecular diagnostics has become not just a choice but a necessity to safeguard brand integrity and consumer trust.

The market's evolution is significantly catalyzed by escalating foodborne outbreaks, increasing globalization of food trade, and stricter enforcement of food safety regulations by agencies such as the FDA, EFSA, and WHO. Moreover, technological convergence with automation and digitization is transforming conventional laboratory testing into more accessible, high-throughput, and portable formats. Instruments embedded with AI-driven analytics and real-time data tracking capabilities are accelerating decision-making at processing plants, retail chains, and import/export checkpoints. While the upfront cost of instrumentation and skilled personnel remains a hurdle, the long-term ROI of faster recalls and contamination traceability is driving

industry-wide adoption.

The immunoassay segment remains a mainstay due to its widespread use in routine screening, yet PCR continues to dominate the market owing to its superior specificity and capacity for multiplex detection. The reagents & consumables segment, meanwhile, is experiencing the fastest growth as consumables are required recurrently with each test cycle. Increasing investment in R&D and government-backed food safety initiatives—particularly in developed nations—is spurring the development of next-gen molecular tools, including CRISPR-based diagnostics, biosensor-integrated PCR devices, and isothermal amplification systems that bypass conventional thermal cycling constraints.

A shifting paradigm toward proactive rather than reactive food safety has spurred a boom in molecular testing solutions that are faster, user-friendly, and tailored to diverse operational scales—from global food corporations to local agro-processors. Portable PCR systems and point-of-need kits are especially gaining traction in low-resource settings and emerging economies. The industry is also witnessing strategic alliances between biotechnology firms and food industry players to co-develop pathogen-specific test kits, customized workflows, and integrated quality assurance platforms. The result is a democratization of food safety diagnostics that bridges lab-based precision with field-level practicality.

Regionally, North America leads the molecular food safety testing landscape due to its mature regulatory ecosystem, rapid adoption of technological innovations, and a robust network of diagnostic providers. Europe closely follows with stringent food quality norms and an advanced cold chain infrastructure that relies on real-time contamination alerts. The Asia Pacific region, propelled by food export demands, growing urbanization, and rising food safety awareness, is expected to emerge as the fastest-growing market during the forecast window. Countries like China, India, and Japan are heavily investing in food safety modernization, while Latin America and the Middle East & Africa are progressively integrating molecular testing through government mandates and capacity-building programs.

Major market player included in this report are:

Eurofins Scientific SE

Thermo Fisher Scientific Inc.

Bio-Rad Laboratories, Inc.

Neogen Corporation

QIAGEN N.V.

bioMérieux SA

Agilent Technologies, Inc.

PerkinElmer Inc.

3M Company

Danaher Corporation

Merck KGaA

R-Biopharm AG

Shimadzu Corporation

Hygiena, LLC

Promega Corporation

The detailed segments and sub-segment of the market are explained below:

#### By Technology

Polymerase Chain Reaction (PCR)

Immunoassay

#### By Product

Instrument

## Reagents & Consumables

### By Region:

#### North America

U.S.

Canada

#### Europe

UK

Germany

France

Spain

Italy

ROE

#### Asia Pacific

China

India

Japan

Australia

South Korea

RoAPAC

Latin America

Brazil

Mexico

Middle East & Africa

Saudi Arabia

South Africa

RoMEA

Years considered for the study are as follows:

Historical year – 2022

Base year – 2023

Forecast period – 2024 to 2032

Key Takeaways:

Market Estimates & Forecast for 10 years from 2022 to 2032.

Annualized revenues and regional level analysis for each market segment.

Detailed analysis of geographical landscape with Country level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of competitive structure of the market.

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