r-biopharm®

Confident Listeria detection – new regulations, smart solutions

Real-time PCR strategies for safe food production

- Lysis & real-time PCR in ONE kit
- Simultaneous detection of *L. monocytogenes* & *Listeria* spp.
- Open system

More information:

https://r-b.io/listeria

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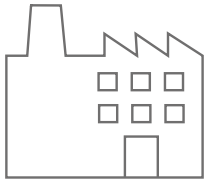
Regulatory testing of Listeria in food production

Recent updates in food safety regulations are increasing pressure on food producers and laboratories to improve *Listeria* spp. and *L. monocytogenes* detection.

Regulation EC 2073/2005 (Microbiolocal criteria of food)

Listeria monocytogenes

Original regulation (2005)



Product specific limits

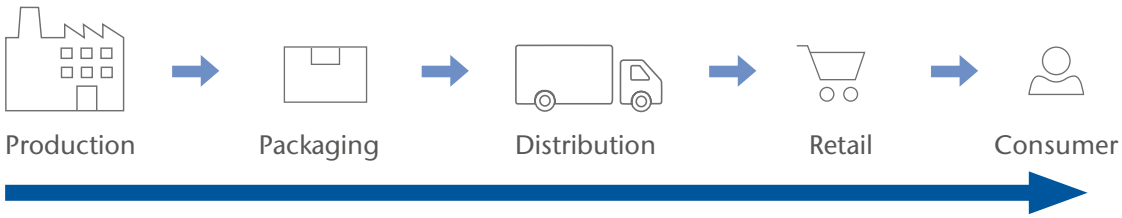
- ≤ 100 CFU/g if no growth throughout shelf-life
- If growth is possible: not detected in 25 g before leaving producer control

Amended (EU 2024/2895)

New criteria for food that supports growth

Not detected in 25 g throughout shelf-life unless proven < 100 CFU/g

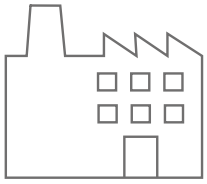
Listeria control now applies across all stages



USDA & FDA (FSIS Programs)

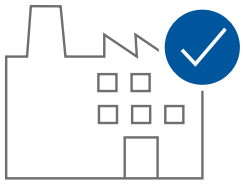
Listeria monocytogenes

Original regulation



Primarily tested in RTE products, environmental samples, and food contact surfaces.

Now (from January 2025)



Expanded testing to include all **Listeria species** in both ready-to-eat products and environmental samples.

Where real-time PCR makes sense

Practical implementation areas for Listeria detection using real-time PCR to support compliance, traceability and release procedures.

Listeria spp. → Environmental early warning
L. monocytogenes → Critical product safety indicator

Preventive controls

- Environmental monitoring (swab testing)
- Temperature control (cold chain)
- Sanitation procedure
- Employee hygiene
- Raw material control

Process validation

- Thermal processing validation
- Hurdle technology (ph, α_w preservatives)
- Shelf-life studies
- Challenge testing

Real-time PCR implementation points

- Raw material screening
- Environmental monitoring
- In-process testing
- Finished product testing
- Shelf-life validation

Application area	Purpose	Benefit
Product release testing	Rapid RTE food clearance	Next day results
Environmental monitoring	Detect *Listeria* spp.	Early risk indicator
Raw material screening	Trace *L. monocytogenes* early	Source control
Hygiene validation	Check cleaning effectiveness	Documented assurance
Sanitation zones	Trend analysis	Avoid persistent contamination

SureFast® ONE –
simple and straightforward

Streamlined protocol

1

Incubate e.g. 25 g food/feed in enrichment medium*

2

Take sample from the stomacher bag and add lysis buffer

3

Mix briefly and incubate for 10 minutes at 95 °C

4

Transfer 5 µL DNA samples (controls) to 20 µL master mix

5

Start the qPCR run

6

Result analysis

* *Salmonella*: BPW for 16 - 24 h; *E. coli*: BPW / mTSB for 18 - 24 h; *Listeria*: Half Fraser broth for 26 - 28 h

ONE system qPCR products

Product	Description	Tests	Art. No.
SureFast® Listeria 3plex ONE AOAC-RI 062501; MicroVal 2023LR114	ROX: *Listeria* spp. Cy5: *Listeria monocytogenes* HEX: IAC	100 reactions incl. DNA prep	F5217
SureFast® Salmonella ONE AOAC-RI 81803 ; MicroVal 2014LR43	FAM: *Salmonella* spp. HEX: IAC	100 reactions incl. DNA prep	F5211
SureFast® STEC 4plex ONE	FAM: *E. coli stx1* (subtype a-d) & *stx2* (subtype a-g) Cy5: *eae* ROX: *E. coli* O157 HEX: IAC	100 reactions incl. DNA prep	F5265