

# Confident Listeria detection – new regulations, smart solutions

Real-time PCR strategies for safe food production

Now  
AOAC &  
MicroVal  
certified



Lysis & real-time PCR in ONE kit



Simultaneous detection of  
*L. monocytogenes* & *Listeria* spp.



Open system

More information:



<https://r-b.io/listeria>

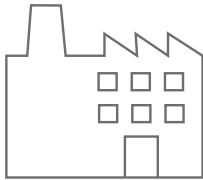
# Regulatory testing of *Listeria* in food production

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 (Microbiological criteria of food)

### *Listeria monocytogenes*

#### Original regulation (2005)



##### Product specific limits

- $\leq 100$  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



Production



Packaging



Distribution



Retail



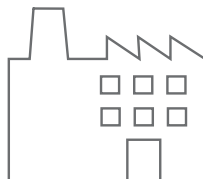
Consumer



## USDA & FDA (FSIS Programs)

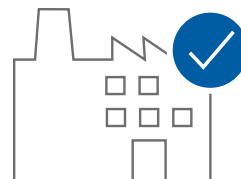
### *Listeria monocytogenes*

#### 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,  $a_w$  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 <i>Listeria</i> spp.	Early risk indicator
Raw material screening	Trace <i>L. monocytogenes</i> 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\*



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



2 Take sample from  
the stomacher bag  
and add lysis buffer



5 Start the qPCR run



3 Mix briefly  
and incubate for 10  
minutes at 95 °C



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® <i>Listeria</i> 3plex ONE AOAC-RI 062501; MicroVal 2023LR114	ROX: <i>Listeria</i> spp. Cy5: <i>Listeria monocytogenes</i> HEX: IAC	100 reactions incl. DNA prep	F5217
SureFast® <i>Salmonella</i> ONE AOAC-RI 81803; MicroVal 2014LR43	FAM: <i>Salmonella</i> spp. HEX: IAC	100 reactions incl. DNA prep	F5211
SureFast® STEC 4plex ONE	FAM: <i>E. coli stx1</i> (subtype a-d) & <i>stx2</i> (subtype a-g) Cy5: <i>eae</i> ROX: <i>E. coli</i> O157 HEX: IAC	100 reactions incl. DNA prep	F5265