

Food Safety and Quality Reference Guide



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ISO Standard

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Cronobacter spp. and *Salmonella* spp.

Alternative Method: iQ-Check *Cronobacter* and
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RAPID'*Sakazakii* and RAPID'*Salmonella*

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PART 2 PATHOGEN TESTING (continued)

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Preparation of Dilutions

ISO Standard

ISO 6887-1:2017/A1:2024

Preparation of test samples, initial suspension, and tenfold dilutions for microbiological examination

Part 1: General rules for preparation of dilutions for microbiological examination

m g or v mL sample
+
 $9 \times m$ g or $9 \times v$ mL
Tryptone Salt Diluent or BPW
(and following dilutions)



Dilution 10^{-1}

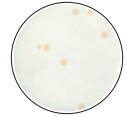


(and following dilutions)

Total Flora



Bacteria



PCA

ISO Standards

ISO 4833-1:2013/A1:2022

Horizontal method for the enumeration of microorganisms
Part 1: Colony count at 30°C by the pour-plate technique

Sample/initial suspension

↓ Dilutions



PCA

↓  30 ± 1°C
72 ± 3 hr

Enumeration of microorganisms

ISO 4833-2:2013/A1:2022

Horizontal method for the enumeration of microorganisms
Part 2: Colony count at 30°C by the surface-plating technique

Sample/initial suspension

↓ Dilutions



PCA

↓  30 ± 1°C
72 ± 3 hr

Enumeration of microorganisms

Ordering Information

Catalog # Description

Buffered Peptone Water (BPW)

BPW Plus

Ready to use

3554179 225 mL x 6 bottles
3555790 5 L x 2 bags
3555795 3 L x 4 bags

Dehydrated

3564684 500 g
3564686 5 kg

BPW Standard

Ready to use

12013260 5 L x 2 bags

Dehydrated

12013258 5 kg
12013259 500 g

Plate Count Agar (PCA)

Ready to use

3554457 200 mL x 6 bottles
3554459 100 mL x 6 bottles
3563989 90 mm x 20 dishes

Dehydrated

3564475 500 g

Tryptone Salt Diluent

Ready to use

3555732 225 mL x 6 bottles
3555754 9 mL x 25 tubes
3555756 90 mL x 6 bottles
3555796 3 L x 4 bags

Dehydrated

3564544 500 g

Escherichia coli

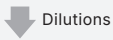
ISO Standards

ISO 16649-1:2018

Horizontal method for the enumeration of β -glucuronidase-positive *E. coli*

Part 1: Colony-count technique at 44°C using membranes and 5-bromo-4-chloro-3-indolyl β -D-glucuronide

Sample/initial suspension



Minerals modified glutamate agar
with membrane

Resuscitation ↓  Room temperature
15 min and 37°C
4 hr ± 15 min



TBX

↓  44°C
22 ± 2 hr

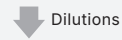
Direct enumeration

ISO 16649-2:2001

Horizontal method for the enumeration of β -glucuronidase-positive *E. coli*

Part 2: Colony-count technique at 44°C using 5-bromo-4-chloro-3-indolyl β -D-glucuronide

Sample/initial suspension



TBX

↓  44°C
21 ± 3 hr

Direct enumeration

*Please refer to ISO 7218:2007.

Escherichia coli

ISO Standards

ISO 16649-3:2015

Horizontal method for the enumeration of β -glucuronidase-positive *E. coli*

Part 3: Most probable number technique using 5-bromo-4-chloro-3-indolyl β -D-glucuronide

Sample/initial suspension

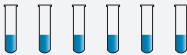


Add 10 mL to each of 3 tubes of double strength minerals modified glutamate medium



Subsequent dilution. Add 1 mL to each of 3 tubes of single strength minerals modified glutamate medium

37°C
24 ± 2 hr



Subculture each tube presenting yellow coloration on a dish of **TBX**

44°C
20–24 hr



Each tube showing blue colonies on **TBX** should be considered positive



Calculate the most probable number from the number of positive tubes at each dilution

ISO 7251:2005/A1:2024

General guidance for detection and enumeration of presumptive *E. coli*

Most probable number technique

Sample/initial suspension



Tryptose lauryl sulfate



Single concentration



or*



Double concentration

37°C
24–48 ± 2 hr

EC medium

44°C
24–48 ± 2 hr

Peptone Water

44°C
48 ± 2 hr

Indole test reading and calculation

*For detection method only.

Escherichia coli



E. coli



Other Coliforms



RAPID'E.coli 2

Total Coliforms

Alternative Method

RAPID'E.coli 2

Enumeration of *E. coli*



Sample/initial suspension

↓ Dilutions



RAPID'E.coli 2

↓  37 or 44°C
21 ± 3 hr

Direct enumeration of typical colonies*

Ordering Information

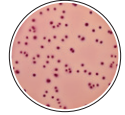
Catalog #	Description
Buffered Peptone Water (BPW)	
BPW Plus Ready to use	
3554179	225 mL x 6 bottles
3555790	5 L x 2 bags
3555795	3 L x 4 bags
Dehydrated	
3564684	500 g
3564686	5 kg
BPW Standard Ready to use	
12013260	5 L x 2 bags
Dehydrated	
12013258	5 kg
12013259	500 g
Kovacs Reagent (for indole detection)	
3555313	15 mL x 2 bottles
RAPID'E.coli 2 Agar Ready to use	
3555297	200 mL x 6 bottles
3555299	100 mL x 6 bottles
Dehydrated	
3564024	500 g
Tryptone Bile X-Glucuronide (TBX) Agar Ready to use	
3555309	100 mL x 6 bottles
Dehydrated	
3564035	500 g
Tryptone Salt Diluent Ready to use	
3555732	225 mL x 6 bottles
3555754	9 mL x 25 tubes
3555756	90 mL x 6 bottles
3555796	3 L x 4 bags
Dehydrated	
3564544	500 g

*Enumeration of typical colonies for *E. coli* and coliforms at 37°C; *E. coli* at 44°C.

Coliforms



Coliforms



VRBL

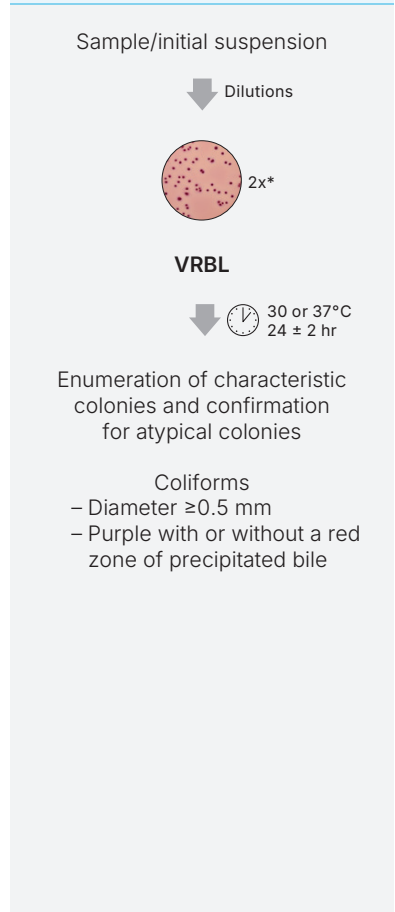
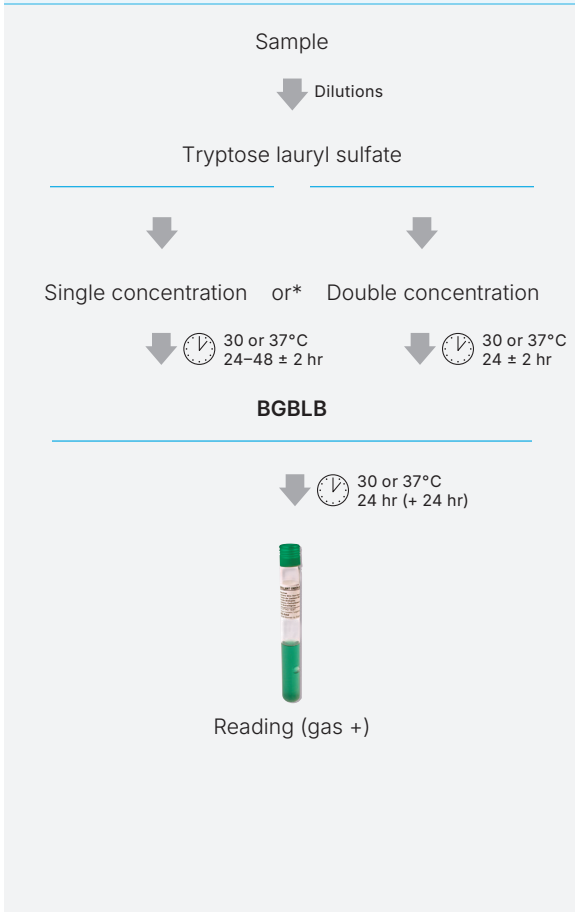
ISO Standards

ISO 4831:2006

Horizontal method for the detection and enumeration of coliforms
Microbiology of food and animal feeding stuffs
MPN technique

ISO 4832:2006

Horizontal method for the enumeration of coliforms
Microbiology of food and animal feeding stuffs
Colony-count technique



*For detection method only.

*Please refer to ISO 7218:2007+A1:2013.

Coliforms

*E. coli*

Other Coliforms



RAPID'E.coli 2

Total Coliforms

Alternative Method

RAPID'E.coli 2

Enumeration of coliforms



Sample/initial suspension

↓ Dilutions



RAPID'E.coli 2

↓ 37°C
21 ± 3 hr

Direct enumeration of typical colonies*

Ordering Information

Catalog # Description

Brilliant Green Bile Lactose Broth (BGBLB)

Ready to use

3578024 10 mL x 25 tubes

Buffered Peptone Water (BPW)

BPW Plus

Ready to use

3554179 225 mL x 6 bottles

3555790 5 L x 2 bags

3555795 3 L x 4 bags

Dehydrated

3564684 500 g

3564686 5 kg

BPW Standard

Ready to use

12013260 5 L x 2 bags

Dehydrated

12013258 5 kg

12013259 500 g

RAPID'E.coli 2 Agar

Ready to use

3555297 200 mL x 6 bottles

3555299 100 mL x 6 bottles

Dehydrated

3564024 500 g

Tryptone Salt Diluent

Ready to use

3555732 225 mL x 6 bottles

3555754 9 mL x 25 tubes

3555756 90 mL x 6 bottles

3555796 3 L x 4 bags

Dehydrated

3564544 500 g

Violet Red Bile Lactose (VRBL) Agar

Ready to use

3554798 200 mL x 6 bottles

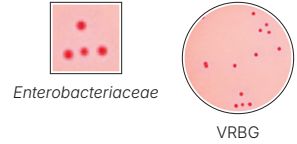
3554799 100 mL x 6 bottles

Dehydrated

3564594 500 g

*Enumeration of typical colonies for *E. coli* and coliforms at 37°C; *E. coli* at 44°C.

Enterobacteriaceae



ISO Standards

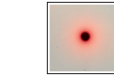
ISO 21528-1:2017	ISO 21528-2:2017				
<p>Horizontal methods for the detection and enumeration of <i>Enterobacteriaceae</i> Microbiology of food and animal feeding stuffs</p> <p>Part 1: Detection and enumeration by MPN technique with pre-enrichment</p>	<p>Horizontal methods for the detection and enumeration of <i>Enterobacteriaceae</i> Microbiology of food and animal feeding stuffs</p> <p>Part 2: Colony-count technique</p>				
<p>Sample</p> <p>↓ Nonselective pre-enrichment</p> <p>BPW</p> <p>↓ 37°C 18 ± 2 hr</p> <p>VRBG</p> <p>↓ 30 or 37°C 24 ± 2 hr</p> <p>Confirmation Nonselective Agar</p> <p>↓ 37°C 24 ± 2 hr</p> <p>Biochemical confirmation</p> <table border="1"> <tr> <td>Oxidase</td> <td>Glucose OF medium</td> </tr> </table>	Oxidase	Glucose OF medium	<p>Sample/initial suspension</p> <p>↓ Dilutions</p> <p>VRBG</p> <p>↓ 30 or 37°C 24 ± 2 hr</p> <p>Reading</p> <p>↓</p> <p>Confirmation Nonselective Agar</p> <p>↓ 37°C 24 ± 2 hr</p> <p>Biochemical confirmation</p> <table border="1"> <tr> <td>Oxidase</td> <td>Glucose OF medium</td> </tr> </table>	Oxidase	Glucose OF medium
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*Please refer to ISO 7218:2007.

Ordering Information

Catalog #	Description
Buffered Peptone Water (BPW)	
BPW Plus	
Ready to use	
3554179	225 mL x 6 bottles
3555790	5 L x 2 bags
3555795	3 L x 4 bags
Dehydrated	
3564684	500 g
3564686	5 kg
BPW Standard	
Ready to use	
12013260	5 L x 2 bags
Dehydrated	
12013258	5 kg
12013259	500 g
2.8% Nutrient Agar	
Dehydrated	
12017540	500 g
Violet Red Bile Glucose (VRBG) Agar	
Ready to use	
3554239	100 mL x 6 bottles
Dehydrated	
3564584	500 g

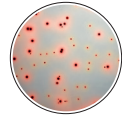
Enterobacteriaceae



Enterobacteriaceae
























Non-Enterobacteriaceae



RAPID Enterobacteriaceae

Alternative Methods

<p>RAPID Enterobacteriaceae</p> <p>Enumeration of <i>Enterobacteriaceae</i></p> 	<p>iQ-Check Enterobacteriaceae Real-Time PCR Kit</p> <p>Detection of <i>Enterobacteriaceae</i> in powdered infant formula with and without probiotics and related ingredients</p>   	<p>Ordering Information</p> <table border="1"> <thead> <tr> <th>Catalog #</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td colspan="2">Buffered Peptone Water (BPW)</td> </tr> <tr> <td>BPW Plus Ready to use</td> <td></td> </tr> <tr> <td>3554179</td> <td>225 mL x 6 bottles</td> </tr> <tr> <td>3555790</td> <td>5 L x 2 bags</td> </tr> <tr> <td>3555795</td> <td>3 L x 4 bags</td> </tr> <tr> <td>Dehydrated</td> <td></td> </tr> <tr> <td>3564684</td> <td>500 g</td> </tr> <tr> <td>3564686</td> <td>5 kg</td> </tr> <tr> <td>BPW Standard Ready to use</td> <td></td> </tr> <tr> <td>12013260</td> <td>5 L x 2 bags</td> </tr> <tr> <td>Dehydrated</td> <td></td> </tr> <tr> <td>12013258</td> <td>5 kg</td> </tr> <tr> <td>12013259</td> <td>500 g</td> </tr> </tbody> </table>	Catalog #	Description	Buffered Peptone Water (BPW)		BPW Plus Ready to use		3554179	225 mL x 6 bottles	3555790	5 L x 2 bags	3555795	3 L x 4 bags	Dehydrated		3564684	500 g	3564686	5 kg	BPW Standard Ready to use		12013260	5 L x 2 bags	Dehydrated		12013258	5 kg	12013259	500 g																																										
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* Alternatively, a temperature of 30 or 35°C can be chosen.

† Suitable with an automatic plate counter.

‡ Refer to user guide for incubation time with each validation.

Salmonella spp.

ISO Standard

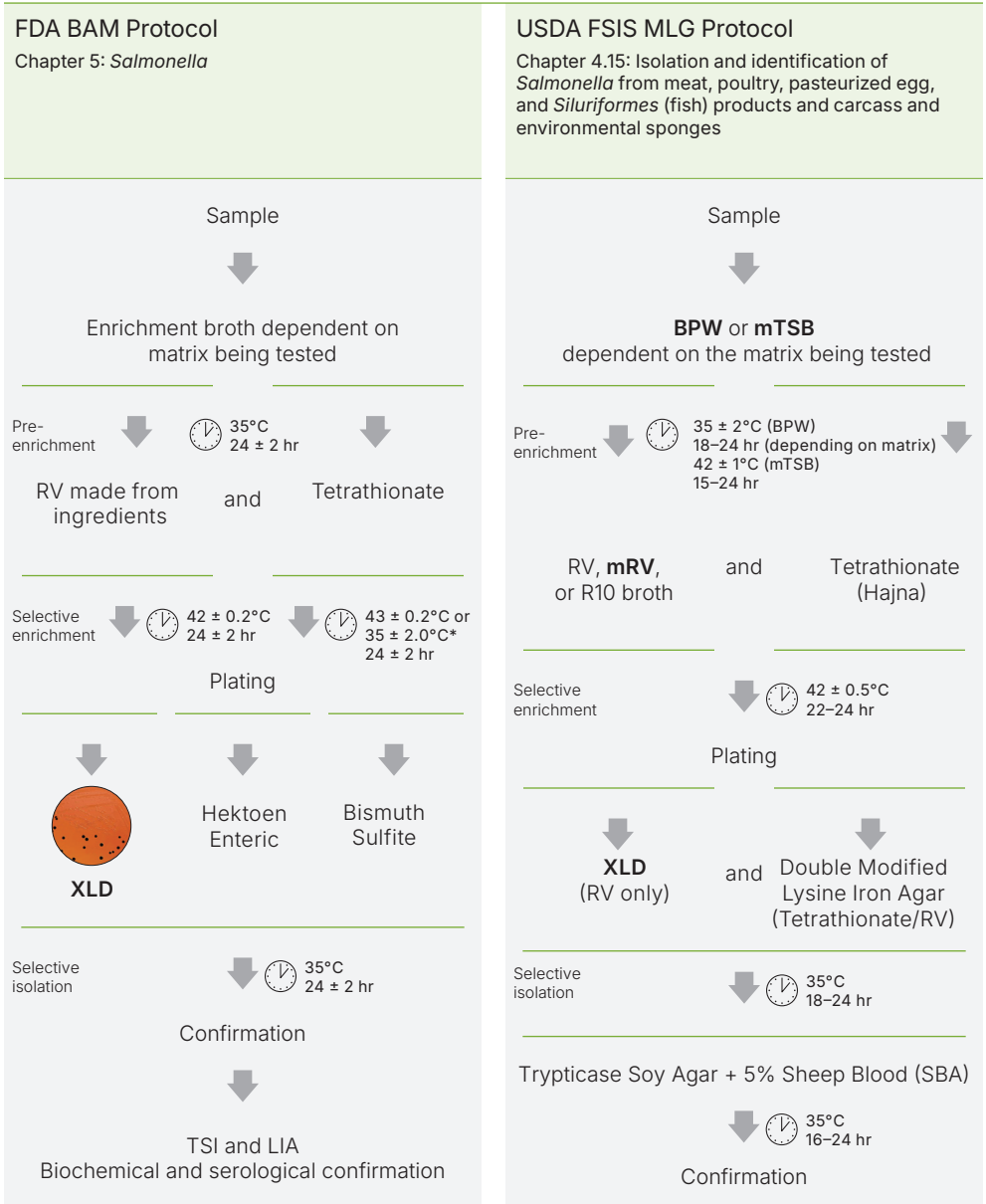
ISO 6579-1:2017/A1:2020
 Horizontal method for the detection, enumeration, and serotyping of *Salmonella* spp.
 Microbiology of the food chain
 Part 1: Detection of *Salmonella* spp.



*For details on serotyping, review ISO 6579-3.

Salmonella spp.

Standard Methods



*Temperature based on low or high microbial load.

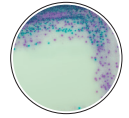
Salmonella spp.



Salmonella spp.



Other Enterobacteriaceae



RAPID Salmonella

Alternative Methods

RAPID Salmonella Double Enrichment Protocol

Detection of *Salmonella* spp.



Sample



BPW

Nonselective pre-enrichment



37 ± 1°C
18 ± 2 hr

RVS

Selective enrichment



41.5 ± 1°C
6–26 hr



Streak on **RAPID Salmonella**



Selective isolation

37 ± 1°C
24 ± 2 hr

Reading and confirmation



Standard Tests
Oxidase-**Omni-O**-ONPG
or
iQ-Check Salmonella II
or
iQ-Check S. Enteritidis
or
iQ-Check S. Typhimurium
or
Salmonella Latex Test
or
MALDI Biotyper

RAPID Salmonella Short Protocol

Detection of *Salmonella* spp.



Sample



BPW + Salmonella Supplement

Selective enrichment



41.5 ± 1°C
16–22 hr



Streak on **RAPID Salmonella**



Selective isolation

37 ± 1°C
24 ± 2 hr

Reading and confirmation



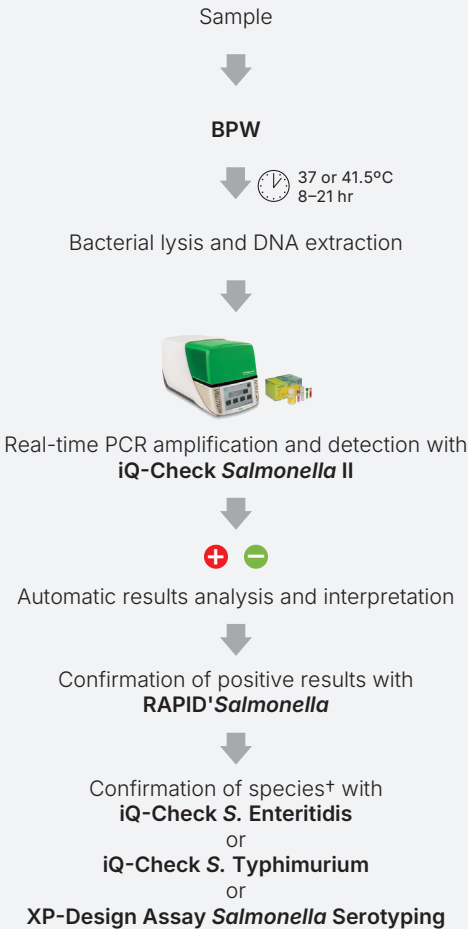
Standard Tests
Oxidase-**Omni-O**-ONPG
or
iQ-Check Salmonella II
or
iQ-Check S. Enteritidis
or
iQ-Check S. Typhimurium
or
Salmonella Latex Test
or
MALDI Biotyper

Salmonella spp.

Alternative Methods

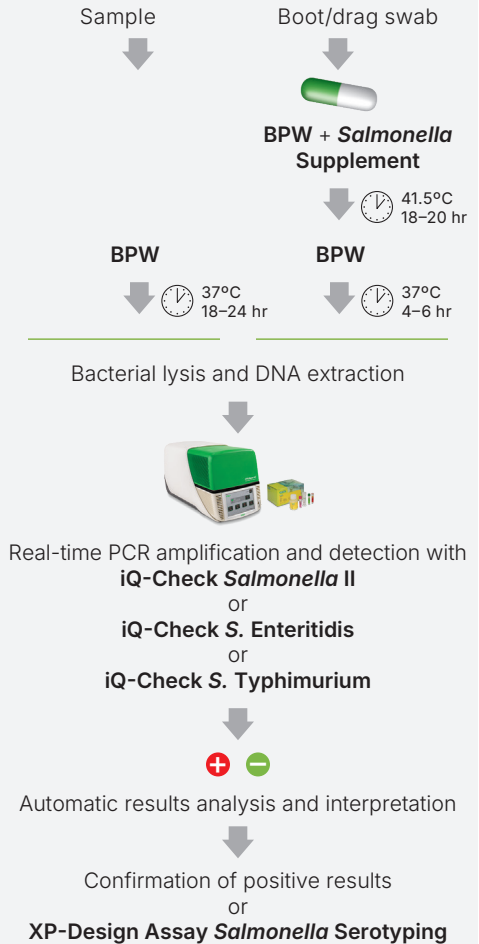
iQ-Check *Salmonella* II Real-Time PCR Kit

Detection of *Salmonella* spp.



iQ-Check *Salmonella* II, iQ-Check *S. Enteritidis*, and iQ-Check *S. Typhimurium* Real-Time PCR Kits

Detection of *S. Enteritidis* and *S. Typhimurium*



* NF Validation on iQ-Check *Salmonella* II Real-Time PCR Kit only.

† Can be used as part of an overall confirmation method.

Salmonella spp.

Ordering Information

Catalog #	Description
Antiserum <i>Salmonella</i> Omnivalent Omni-O (A-60) 3560781B	3 mL dropper bottle
Brilliant Green (Kristensen) Agar Dehydrated 3564464	500 g
Buffered Peptone Water (BPW) BPW Plus Ready to use 3554101 3554179 3555790 3555795	100 mL x 6 bottles 225 mL x 6 bottles 5 L x 2 bags 3 L x 4 bags
Dehydrated 3564684 3564686	500 g 5 kg
BPW Standard Ready to use 12013260	5 L x 2 bags
Dehydrated 12013258 12013259	5 kg 500 g
iQ-Check Free DNA Removal Solution 3594970	175 mg
iQ-Check Purification Reagent 12012383	2.5 g
iQ-Check <i>Salmonella</i> II Kit 3578123	96 tests
iQ-Check <i>S. Enteritidis</i> Kit 3578142	96 tests
iQ-Check <i>S. Typhimurium</i> Kit 12004306	96 tests

Catalog #	Description
Muller Kauffmann Tetrathionate Novobiocin (MKTTN) Broth Ready to use 3556140	10 mL x 50 tubes
Dehydrated base 3564714	500 g
Modified Semi-Solid Rappaport Vassiliadis (MSRV, mRV) Medium Ready to use 3556139	200 mL x 6 bottles
Dehydrated 3564325	500 g
Modified Tryptic Soy Broth (mTSB) Ready to use (containing novobiocin) 3555426	225 mL x 6 bottles
Dehydrated base 3564426	500 g
PIF Supplement 12013322	2 g
RAPID'<i>Salmonella</i> Agar Ready to use 3563961 3563963	90 mm x 20 dishes 90 mm x 120 dishes
Dehydrated 3564705	500 g

Catalog #	Description
RAPID'<i>Salmonella</i> Supplement 3564709	Enough for 2.5 L x 100 capsules
3564710	Enough for 250 mL x 100 capsules
3564712	Enough for 100 analyses x 1 pkg
Rappaport Vassiliadis Soya (RVS) Broth Ready to use 3555773	10 mL x 25 tubes
Dehydrated 3564324	500 g
<i>Salmonella</i> Latex Test Detection of groups B to E and G 3556710	75 tests
Selenite-Cystine Broth Complete medium 3555746	10 mL x 25 tubes
Xylose Lysine Desoxycholate (XLD) Agar Ready to use 3541751	90 mm x 20 dishes
Dehydrated 3569124	500 g

Visit bio-rad.com/antiseria for a complete list of our *Salmonella* antisera.

Visit bio-rad.com/XPDesign for a complete list of XP-Design Assays for molecular serotyping of *Salmonella* spp.

Cronobacter spp.

ISO Standard

ISO 22964:2017

Horizontal method for the detection of *Cronobacter* spp.
Microbiology of the food chain

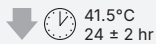
Sample preparation
Weigh 10 g or 10 mL test portion in 90 mL
BPW



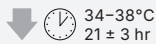
Selective enrichment
Transfer 0.1 mL into 10 mL *Cronobacter*
Selective Broth



Streak on Chromogenic *Cronobacter*
Isolation Agar



Transfer 1 to 5 colonies
on Nonselective Agar



Biochemical confirmation

Standard Method

FDA BAM Protocol

Chapter 29: *Cronobacter*

Sample



1:10
BPW



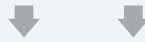
40 mL



Centrifuge 3,000 x g for 10 min
Decant supernatant
Resuspend pellet in 200 µL
phosphate buffered saline



Spread and
streak plates
100 µL



DFI
agar

R&F
agar

PCR



Typical colonies from each plate
are confirmed with real-time PCR and
other techniques

Cronobacter spp. and *Salmonella* spp.

Alternative Method

iQ-Check *Cronobacter* spp. and iQ-Check *Salmonella* II Real-Time PCR Kits or RAPID'*Sakazakii* and RAPID'*Salmonella*

Simultaneous detection of *Salmonella* and *Cronobacter* in powdered infant formula and cereals with and without probiotics and in ingredients



Up to 375 g of sample



BPW 1:4 dilution + PIF Supplement

37°C
18–24 hr (RAPID')
18–26 hr (iQ-Check)



Screening*

Salmonella spp.

iQ-Check *Salmonella* II
or
RAPID'*Salmonella*

Cronobacter spp.

iQ-Check *Cronobacter* spp.
or
RAPID'*Sakazakii*

Ordering Information

Catalog #	Description
Buffered Peptone Water (BPW)	
BPW Plus Ready to use	
3554179	225 mL x 6 bottles
3555790	5 L x 2 bags
3555795	3 L x 4 bags
Dehydrated	
3564684	500 g
3564686	5 kg
BPW Standard Ready to use	
12013260	5 L x 2 bags
Dehydrated	
12013258	5 kg
12013259	500 g
iQ-Check <i>Cronobacter</i> spp.	
3578137	96 tests
iQ-Check Free DNA Removal Solution	
3594970	175 mg
iQ-Check Purification Reagent	
12012383	2.5 g
iQ-Check <i>Salmonella</i> II Kit	
3578123	96 tests
PIF Supplement	
12013322	2 g
RAPID'<i>Sakazakii</i> Agar Ready to use	
3563971	90 mm x 20 dishes
Dehydrated	
3564976	500 g
RAPID'<i>Salmonella</i> Agar Ready to use	
3563961	90 mm x 20 dishes
3563963	90 mm x 120 dishes
Dehydrated	
3564705	500 g
Trypto-Casein-Soy Agar (TSA) Ready to use	
3563884B	90 mm x 20 dishes
Dehydrated	
3564554	500 g
Vancomycin Supplement	
3564145	5 g

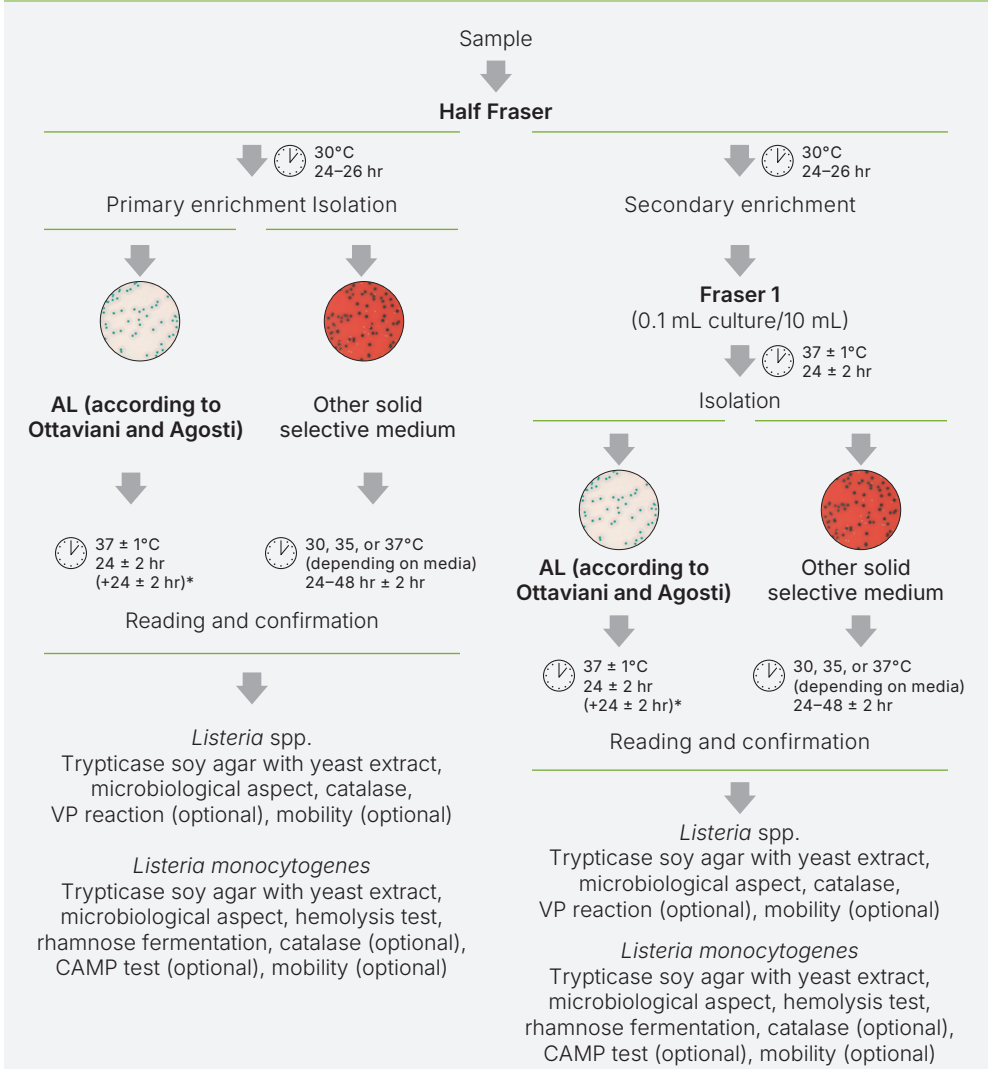
*AOAC approved for screening with iQ-Check *Enterobacteriaceae*.

Listeria monocytogenes

ISO Standards

ISO 11290-1:2017

Horizontal method for the detection and enumeration of *L. monocytogenes*
Microbiology of the food chain
Part 1: Detection method



*If low or absent colony growth is observed after 24 hr.

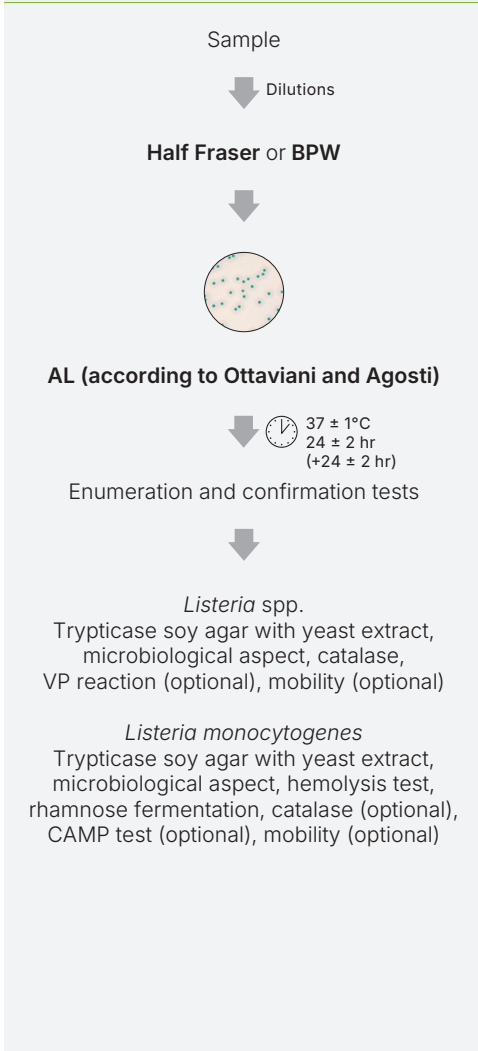
Listeria monocytogenes

ISO Standards

ISO 11290-2:2017

Horizontal method for the detection and enumeration of *L. monocytogenes*
Microbiology of the food chain

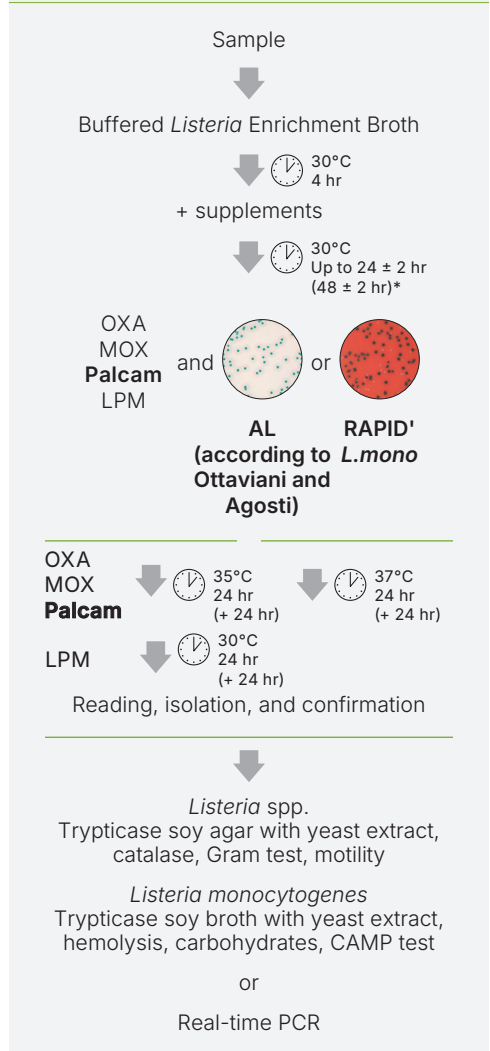
Part 2: Enumeration method



Standard Methods

FDA BAM Protocol

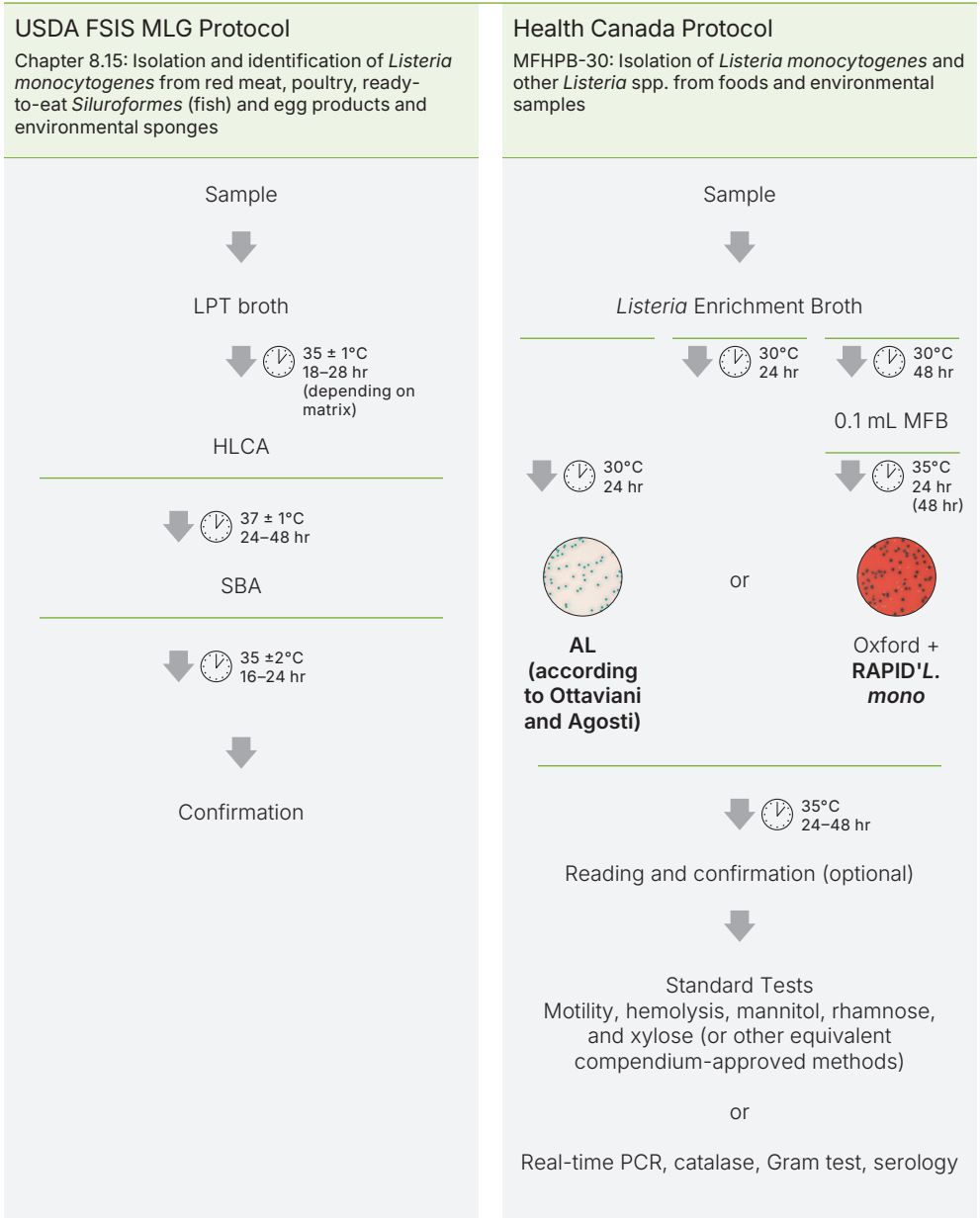
Chapter 10: *Listeria monocytogenes*



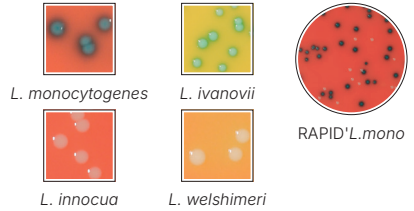
*If low or absent colony growth is observed after 24 hr.

Listeria monocytogenes

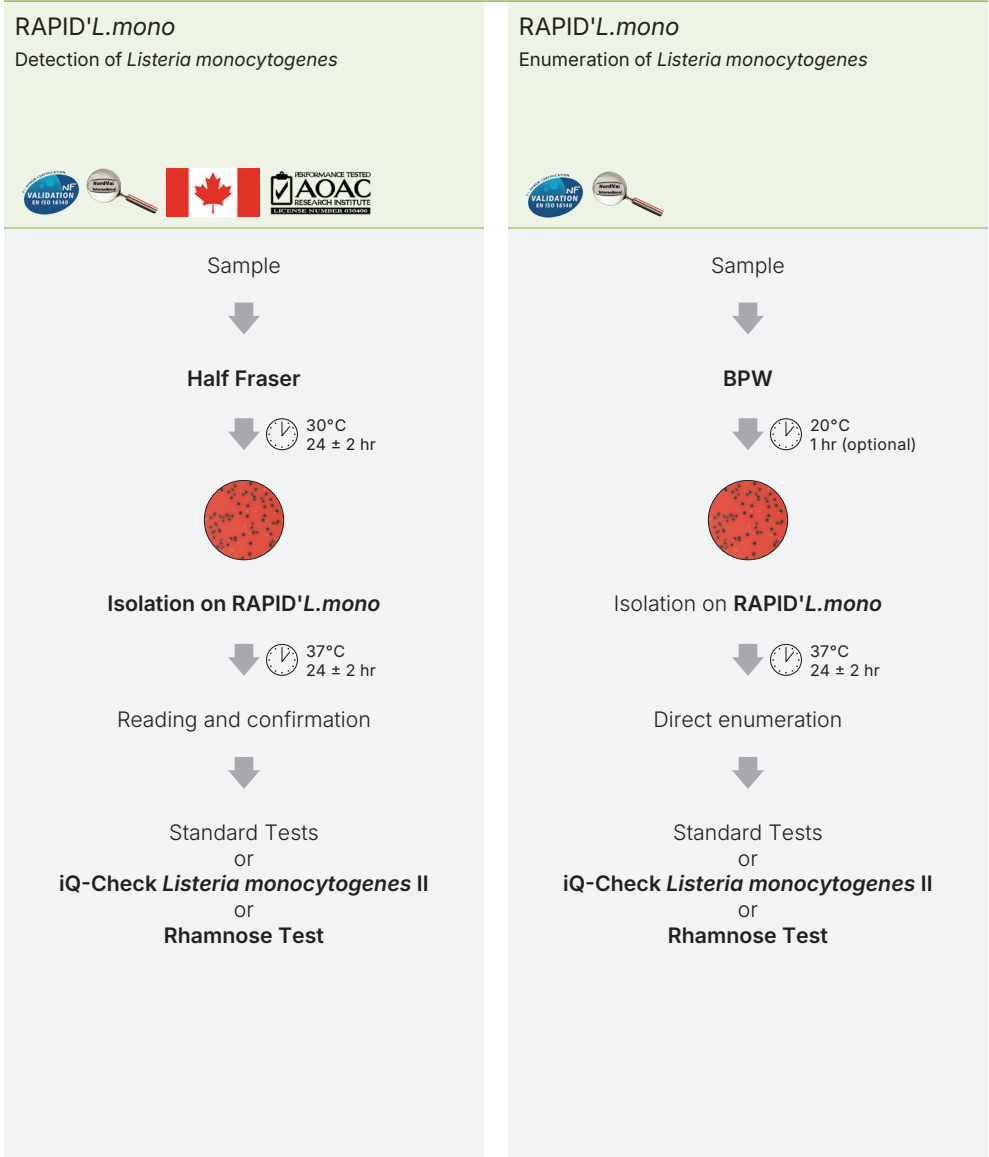
Standard Methods



Listeria monocytogenes



Alternative Methods



Listeria monocytogenes



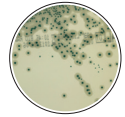
L. monocytogenes



Listeria spp.




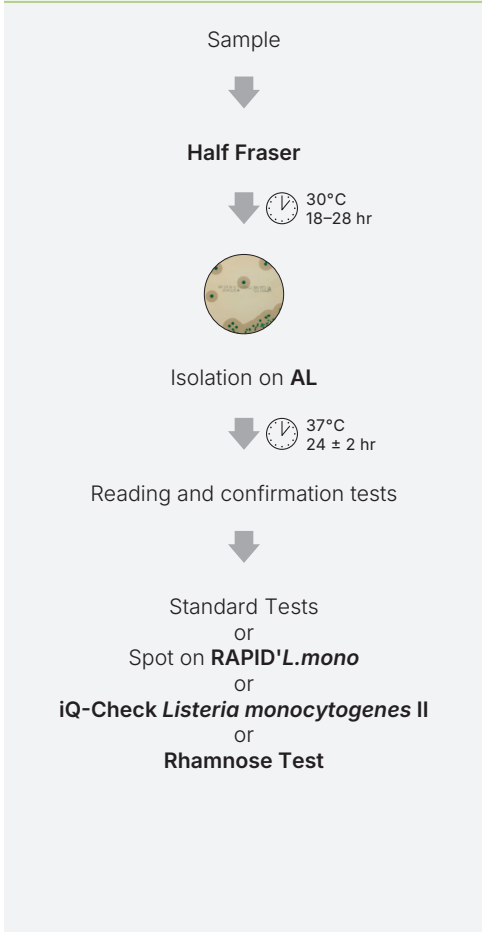
Non-*Listeria*




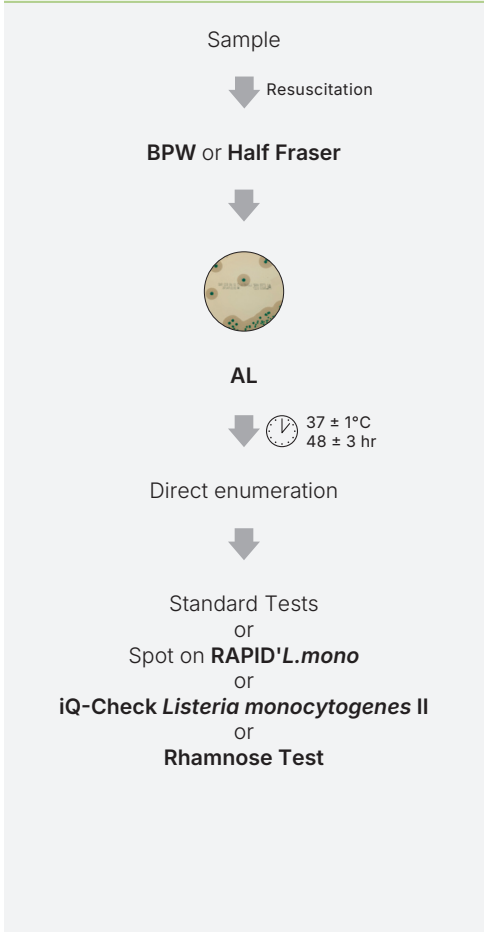
AL (Agar *Listeria* according to Ottaviani and Agosti)

Alternative Methods

AL (Agar *Listeria* according to Ottaviani and Agosti)
 Detection of *Listeria monocytogenes*

AL (Agar *Listeria* according to Ottaviani and Agosti)
 Enumeration of *Listeria monocytogenes*

Listeria monocytogenes

Alternative Methods

iQ-Check *Listeria monocytogenes* II Real-Time PCR Kit

Detection of *Listeria monocytogenes*



Sample/initial suspension



LSB or LSB II or Half Fraser



30°C
18–26 hr
(LSB) or 30°C
25 ± 1 hr
(Half Fraser
Broth and LSB) or 37 ± 1°C
16–26 hr*
(LSB II)

Bacterial lysis and DNA extraction standard (add LSB or LSB II) or easy (LSB or LSB II)



Real-time PCR amplification and detection with **iQ-Check *Listeria monocytogenes* II**



Automatic results analysis and interpretation



Confirmation of positive results with
RAPID'*Listeria* spp. or **RAPID'*L.mono***

*Varies by validation and matrix.

Listeria monocytogenes

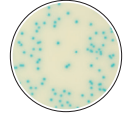
Ordering Information

Catalog #	Description	Catalog #	Description	Catalog #	Description
AL (Agar <i>Listeria</i> according to Ottaviani and Agosti)		Half Fraser Plus Ready to use		RAPID[®] <i>Listeria</i> spp. Agar Dehydrated base	
Ready to use		3555794	3 L x 4 bags	3564744	500 g
3563695	90 mm x 20 dishes	3555797	225 mL x 6 bottles	Supplement 1	
3563965	90 mm x 120 dishes	Dehydrated base		3564745	10 vials
Dehydrated base		3564604	500 g	Supplement 2	
3564043	500 g	Supplement		3564746	10 vials
Base in vials (to be supplemented)		3564616	10 vials	RAPID[®] <i>L. mono</i> Agar Ready to use	
3555200	237.5 mL x 6 bottles	Half Fraser Standard Ready to use		3555294	Kit: 190 mL agar + 2 suppl.
Supplement 1		12018707	5 L x 2 bags	3563694	90 mm x 20 dishes
3564041	10 vials	Dehydrated		3563964	90 mm x 120 dishes
Supplement 2		12018705	5 kg	Dehydrated base	
3564042	10 vials	12018706	500 g	3564293	500 g
Buffered Peptone Water (BPW)		iQ-Check Free DNA Removal Solution		Supplement 1	
BPW Plus Ready to use		3594970	175 mg	3564294	10 vials
3554101	100 mL x 6 bottles	iQ-Check		Supplement 2	
3554179	225 mL x 6 bottles	Listeria monocytogenes II Kit		3564746	10 vials
3555790	5 L x 2 bags	3578124	96 tests	Rhamnose Test	
3555795	3 L x 4 bags	iQ-Check Purification Reagent		3553669	28 tests
Dehydrated		12012383	2.5 g		
3564684	500 g	Listeria Special Broth (LSB)			
3564686	5 kg	Ready to use			
BPW Standard Ready to use		3555703	225 mL x 6 bottles		
12013260	5 L x 2 bags	3555793	5 L x 2 bags		
Dehydrated		Dehydrated			
12013258	5 kg	3564703	500 g		
12013259	500 g	3564753	5 kg		
Fraser 1 Complete medium		Listeria Special Broth II (LSB II)			
3554569	10 mL x 25 tubes	Ready to use			
Dehydrated base		12017463	225 mL x 6 bottles		
3564604	500 g	Dehydrated			
Supplement		12017378	5 kg		
3564615	10 vials	12017388	500 g		

Listeria spp.



Listeria spp.



RAPID>Listeria spp.

Alternative Methods

RAPID'L.mono

Detection of *Listeria* spp.



Sample



Half Fraser



30°C
24 ± 2 hr



Isolation on **RAPID'L.mono**



37°C
(24 hr) 48 hr

Reading and confirmation tests



Standard Tests
or
iQ-Check *Listeria* spp.
or
Spot on **Palcam**
or
Spot on **AL**

RAPID>Listeria spp.

Detection of *Listeria* spp.



Sample



Half Fraser or UVM



30°C
18-28 hr



Isolation on **RAPID>Listeria spp.**



37°C
24 ± 2 hr

Reading and confirmation tests



Standard Tests
or
Spot on **RAPID'L.mono**
or
Spot on **Palcam**
or
iQ-Check *Listeria* spp.

Listeria spp.

Alternative Methods

AL (Agar *Listeria* according to Ottaviani and Agosti)

Detection of *Listeria* spp.



Sample



Half Fraser



30°C
24 ± 2 hr



Isolation on **AL**



37°C
24 ± 2 hr

Reading and confirmation tests



Standard Tests
or
iQ-Check *Listeria* spp.
or
Streak on **Palcam**

iQ-Check *Listeria* spp. Real-Time PCR Kit

Detection of *Listeria* spp.



Sample



LSB or LSB II



30°C
18–26 hr (LSB)
or 37 ± 1°C
16–26 hr* (LSB II)

Bacterial lysis and DNA extraction standard
or easy protocol



Real-time PCR amplification and detection with
iQ-Check *Listeria* spp.



Automatic results analysis and interpretation



Confirmation of positive results with
RAPID'*Listeria* spp. or **RAPID'*L.mono***

*Varies by validation and matrix.

Listeria spp.

Ordering Information

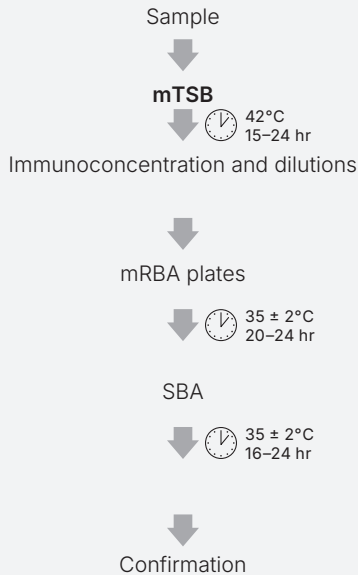
Catalog #	Description	Catalog #	Description	Catalog #	Description
AL (Agar <i>Listeria</i> according to Ottaviani and Agosti)		Listeria Special Broth (LSB)		RAPID'<i>L.mono</i> Agar	
Ready to use		Ready to use		Ready to use	
3563695	90 mm x 20 dishes	3555703	225 mL x 6 bottles	3555294	Kit: 190 mL agar + 2 suppl.
3563965	90 mm x 120 dishes	3555793	5 L x 2 bags	3563694	90 mm x 20 dishes
Dehydrated base		Dehydrated		Dehydrated base	
3564043	500 g	3564703	500 g	3563964	90 mm x 120 dishes
Base in vials (to be supplemented)		Listeria Special Broth II (LSB II)		Dehydrated base	
3555200	237.5 mL x 6 bottles	Ready to use		3564293	500 g
Supplement 1		Ready to use		Supplement 1	
3564041	10 vials	12017463	225 mL x 6 bottles	3564294	10 vials
Supplement 2		Dehydrated		Supplement 2	
3564042	10 vials	12017388	500 g	3564746	10 vials
Half Fraser Plus		Dehydrated			
Ready to use		12017378	5 kg		
3555794	3 L x 4 bags	Palcam Agar			
3555797	225 mL x 6 bottles	Dehydrated base			
Dehydrated base		3564754	500 g		
3564604	500 g	Supplement			
Supplement		3564752	10 vials		
3564616	10 vials	RAPID'<i>Listeria</i> spp. Agar			
Half Fraser Standard		Dehydrated base			
Ready to use		3564744	500 g		
12018707	5 L x 2 bags	Supplement 1			
Dehydrated		3564745	10 vials		
12018705	5 kg	Supplement 2			
12018706	500 g	3564746	10 vials		
iQ-Check Free DNA Removal Solution					
3594970	175 mg				
iQ-Check <i>Listeria</i> spp. Kit					
3578113	96 tests				
iQ-Check Purification Reagent					
12012383	2.5 g				

Shiga Toxin–Producing *Escherichia coli* (including O157:H7)

Standard Method

USDA FSIS MLG Protocol

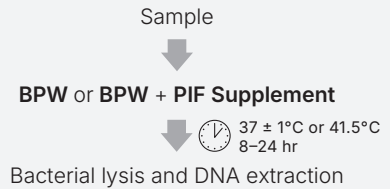
Detection, isolation, and identification of the top seven Shiga toxin–producing *E. coli* (STEC) from meat products, carcass, and environmental sponges



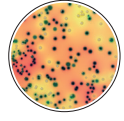
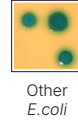
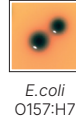
Alternative Methods

iQ-Check STEC VirX and SerO II Real-Time PCR Kits

Detection of *stx/eah* virulence genes and identification of Shiga toxin–producing *E. coli* (STEC) major O-groups: O157:H7, O111, O26, O103, O145, O121, and O45



Shiga Toxin–Producing *Escherichia coli* (including O157:H7)

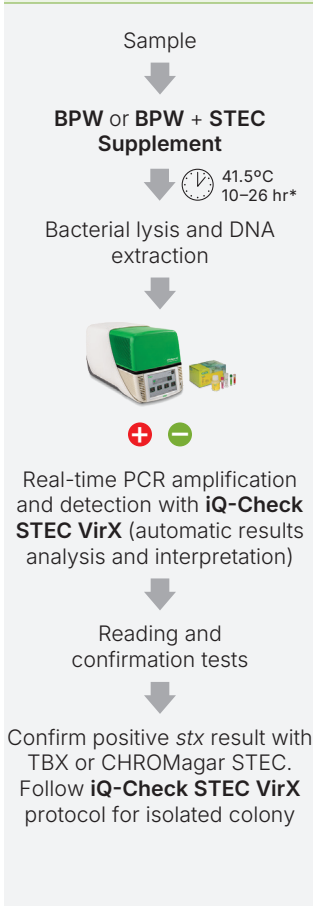


Alternative Methods

iQ-Check STEC VirX Kit

Detection of *stx* virulence genes of Shiga toxin–producing *E. coli* (STEC) major O-groups

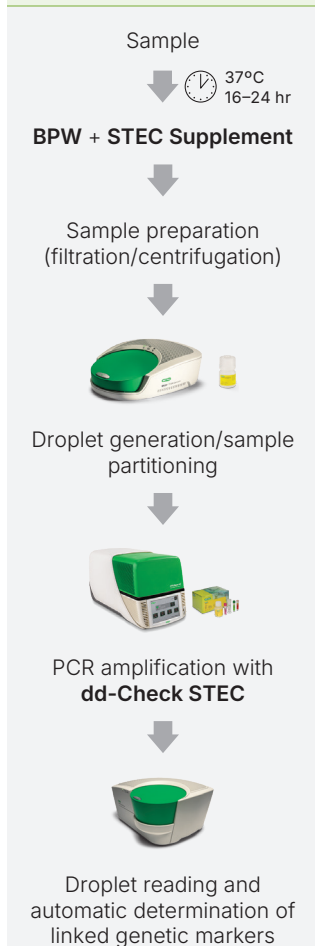
MICROVAL[®] | nēn



*Incubate at 41.5°C for 10–18 hr for raw meat, 16–24 hr for raw milk products, and 18–26 hr for flour and raw dough products.

dd-Check STEC Solution

Detection of colocalized genetic markers of Shiga toxin–producing *E. coli* (STEC)



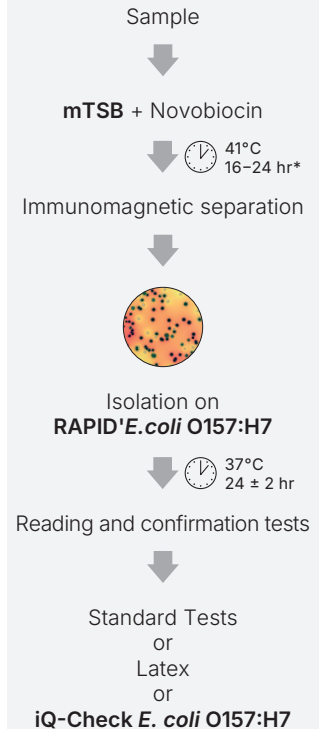
RAPID'*E. coli* O157:H7

Detection of *Escherichia coli* O157:H7

Escherichia coli O157:H7



RAPID'*E. coli* O157:H7 can also be used as a second medium in the ISO 16654 standard.



*For AOAC, incubate at 35 ± 2°C for 16 hr for ground beef and 37 ± 0.5°C for 24 hr for fresh spinach.

Shiga Toxin–Producing *Escherichia coli* (including O157:H7)

Alternative Methods

iQ-Check *E. coli* O157:H7 Real-Time PCR Kit

Detection of *Escherichia coli* O157:H7



Sample



BPW



41.5°C
8–24 hr

Bacterial lysis and easy DNA extraction



Real-time PCR amplification and detection with
iQ-Check *E. coli* O157:H7



Results analysis and interpretation



Confirm positive results with **RAPID^E *E. coli* O157:H7**

Ordering Information

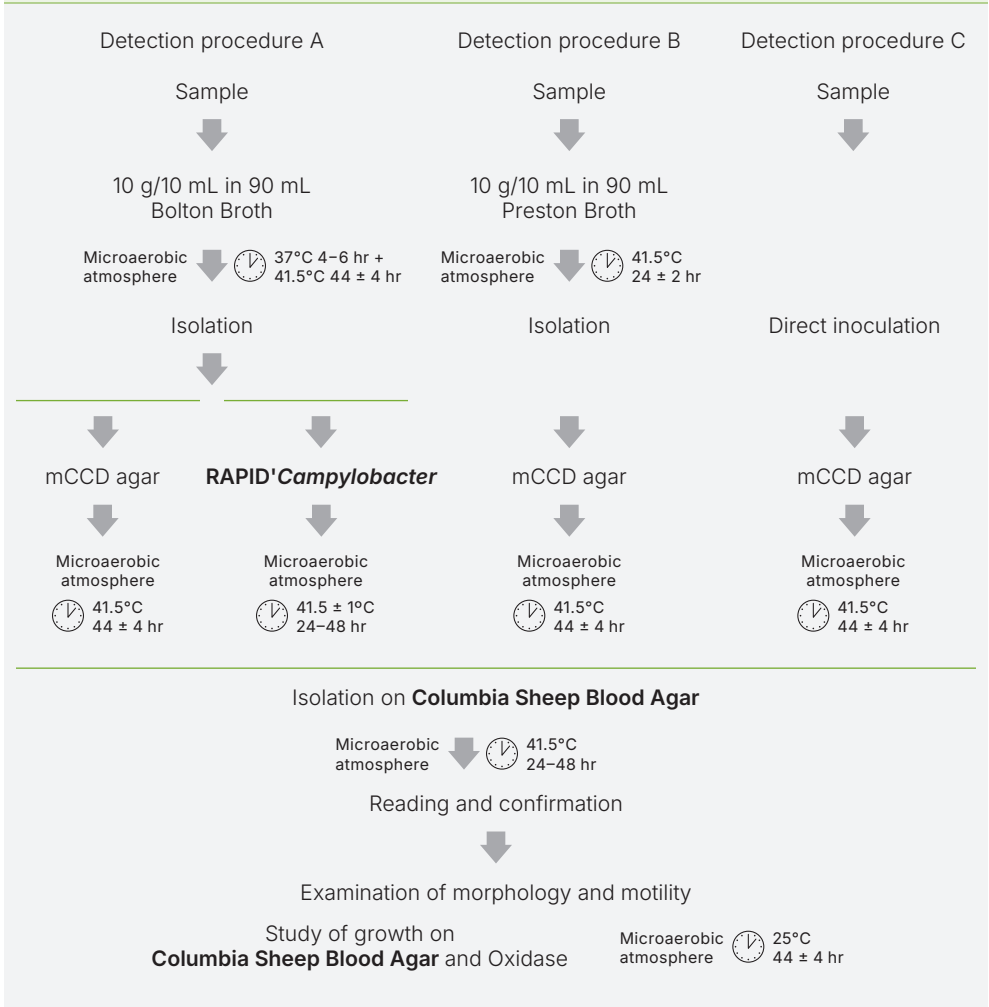
Catalog #	Description
Buffered Peptone Water (BPW)	
BPW Plus	
Ready to use	
3554179	225 mL x 6 bottles
3555790	5 L x 2 bags
3555795	3 L x 4 bags
Dehydrated	
3564684	500 g
3564686	5 kg
BPW Standard	
Ready to use	
12013260	5 L x 2 bags
Dehydrated	
12013258	5 kg
12013259	500 g
dd-Check STEC Solution (includes kit and oil)	
17004826	96 tests
iQ-Check <i>E. coli</i> O157:H7 Kit	
3578114	96 tests
iQ-Check Free DNA Removal Solution	
3594970	175 mg
iQ-Check Purification Reagent	
12012383	2.5 g
iQ-Check STEC SerO II	
12013174	32 tests
iQ-Check STEC VirX	
3578139	96 tests
Modified Tryptic Soy Broth (mTSB) Ready to use (containing novobiocin)	
3555426	225 mL x 6 bottles
Dehydrated base	
3564426	500 g
RAPID^E <i>E. coli</i> O157:H7 Agar	
Dehydrated base	
3564748	100 g
Selective STEC Supplement	
3564005	1 g

Campylobacter spp.

ISO Standards

ISO 10272-1:2017

Horizontal method for detection and enumeration of *Campylobacter* spp.
 Microbiology of the food chain
 Part 1: Detection method



Campylobacter spp.

ISO Standards

ISO 10272-2:2017

Horizontal method for detection and enumeration of *Campylobacter* spp.
Microbiology of the food chain
Part 2: Enumeration method

Initial suspension (decimal dilutions)



mCCD agar

Microaerobic atmosphere   41.5°C
44 ± 4 hr

Enumeration and confirmation



Columbia Sheep Blood Agar

  41.5°C
24–48 hr

Examination of morphology and motility

Growth at 25°C,
in a microaerobic atmosphere

Oxidase

Standard Method

USDA FSIS MLG Protocol

Chapter 41.09: Isolating and identifying *Campylobacter* from poultry rinsate, sponge and raw product samples

Poultry sample (raw/rinsed/sponge)



BPW or Hunt Broth with supplements

Microaerobic atmosphere   42 ± 1°C
24 ± 2 hr

Campy-Cefex Agar

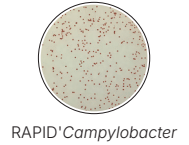
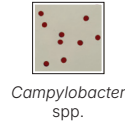


Incubate

Microaerobic atmosphere   42 ± 1°C
48 ± 2 hr

Reading, isolation, and confirmation

Campylobacter spp.



Alternative Methods

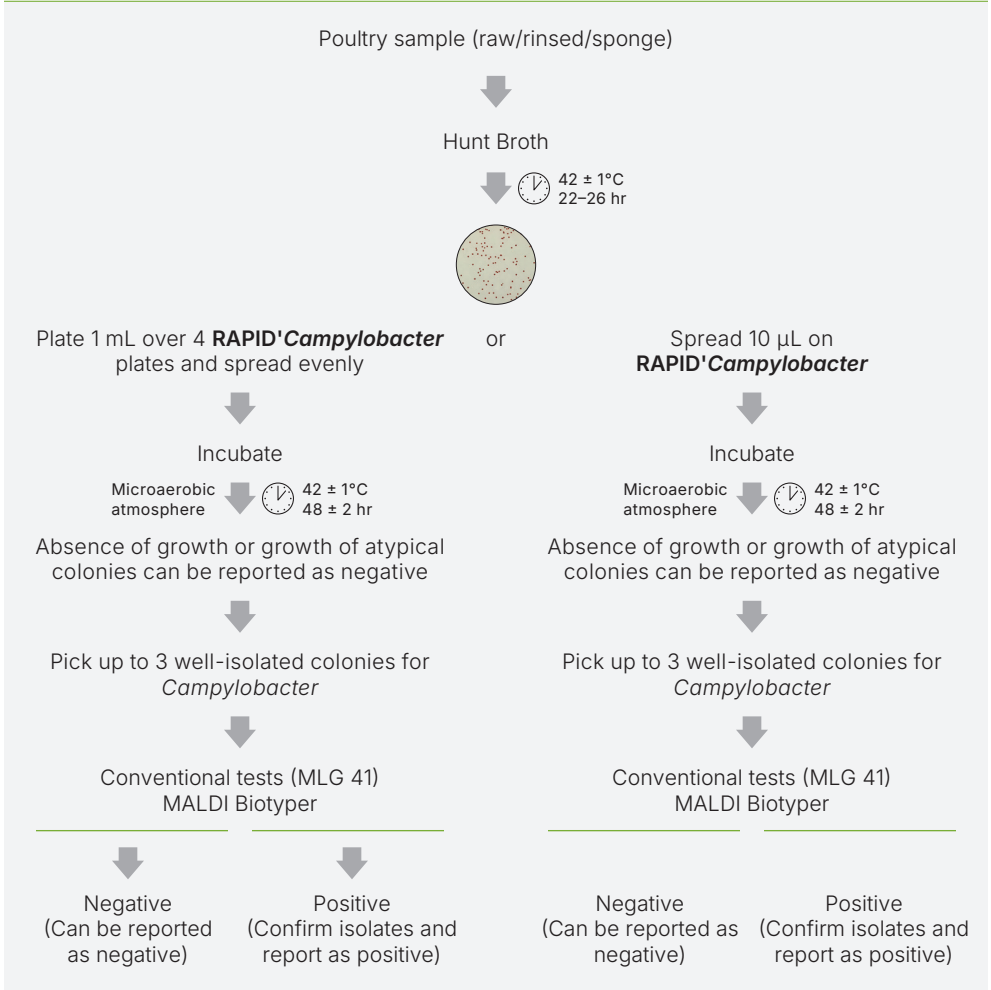
<p>RAPID'Campylobacter Detection of <i>Campylobacter</i> spp.</p>	<p>RAPID'Campylobacter Enumeration of <i>Campylobacter</i> spp.</p>
<p style="text-align: center;">Sample enrichment</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Preston broth</p> <p style="text-align: center;">↓ 41.5 ± 1°C 24 ± 2 hr</p> <p style="text-align: center;"></p> <p style="text-align: center;">Isolation on RAPID'Campylobacter</p> <p style="text-align: center;">Microaerobic atmosphere ↓ 41.5 ± 1°C 24–48 hr</p> <p style="text-align: center;">Reading and confirmation tests</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Standard Tests or Latex Agglutination Test or iQ-Check <i>Campylobacter</i></p>	<p style="text-align: center;">Suspension/dilution</p> <p style="text-align: center;">↓</p> <p style="text-align: center;"></p> <p style="text-align: center;">Isolation on RAPID'Campylobacter</p> <p style="text-align: center;">Microaerobic atmosphere ↓ 41.5 ± 1°C (24 hr) 48 ± 4 hr</p> <p style="text-align: center;">Direct enumeration of typical colonies</p>

Campylobacter spp.

Alternative Methods

RAPID'*Campylobacter*

Enumeration of *Campylobacter* spp.



Campylobacter spp.

Alternative Methods


iQ-Check *Campylobacter* Real-Time PCR Kit

Detection of *C. jejuni*, *C. coli*, and *C. lari*



Food sample
suppl. Bolton

Carcass rinse or
sponge
2x Blood-Free Bolton
Enrichment Broth

 37 ± 1°C 4–6 hr +
41.5 ± 1°C 20–24 hr

 42°C
24 hr

Bacterial lysis and DNA extraction



Real-time PCR amplification and detection with
iQ-Check *Campylobacter*



Results analysis and interpretation

Ordering Information

Catalog #	Description
Buffered Peptone Water (BPW)	
BPW Plus	
Ready to use	
3554179	225 mL x 6 bottles
3555790	5 L x 2 bags
3555795	3 L x 4 bags
Dehydrated	
3564684	500 g
3564686	5 kg
BPW Standard	
Ready to use	
12013260	5 L x 2 bags
Dehydrated	
12013258	5 kg
12013259	500 g
Confirmation	
3554154	Sterile Distilled Water, 9 mL x 25 tubes
3554164	Physiologic Sterile Water (0.85%), 9 mL x 25 tubes
3563784	Columbia Sheep Blood Agar, 90 mm x 20 dishes
iQ-Check <i>Campylobacter</i> Kit	
3578135	96 tests
iQ-Check Free DNA Removal Solution	
3594970	175 mg
iQ-Check Purification Reagent	
12012383	2.5 g
RAPID'Campylobacter Agar	
Ready to use	
12012036	90 mm x 20 dishes
Dehydrated base	
3564295	500 g
Supplement	
3564296	10 vials
Tryptone Salt Diluent	
Ready to use	
3555732	225 mL x 6 bottles
3555754	9 mL x 25 tubes
3555756	90 mL x 6 bottles
3555796	3 L x 4 bags
Dehydrated	
3564544	500 g

Staphylococcus aureus

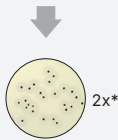
ISO Standards

ISO 6888-1:2021

Horizontal method for the enumeration of coagulase-positive *Staphylococci* (*S. aureus* and other species)

Method using Baird-Parker agar medium

Sample/initial suspension and following dilution



BP Agar

↓ 34–38°C
24 ± 2 hr + 24 ± 2 hr

Enumeration



Confirmation

BHI

↓ 34–38°C
24 ± 2 hr



BHI

↓ 34–38°C
24 ± 2 hr + 24 ± 2 hr

Coagulation reading

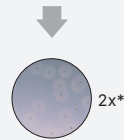
Typical staphylococci form gray to black colonies with a surrounding clear halo and a white opaque zone.

ISO 6888-2:2021

Horizontal method for the enumeration of coagulase-positive *Staphylococci* (*S. aureus* and other species)

Method using rabbit plasma fibrinogen agar medium

Sample/initial suspension and following dilution



BP + RPF

↓ 34–38°C
24 ± 2 hr + 24 ± 2 hr

Direct enumeration of typical coagulase-positive staphylococci

*Please refer to ISO 7218:2007.

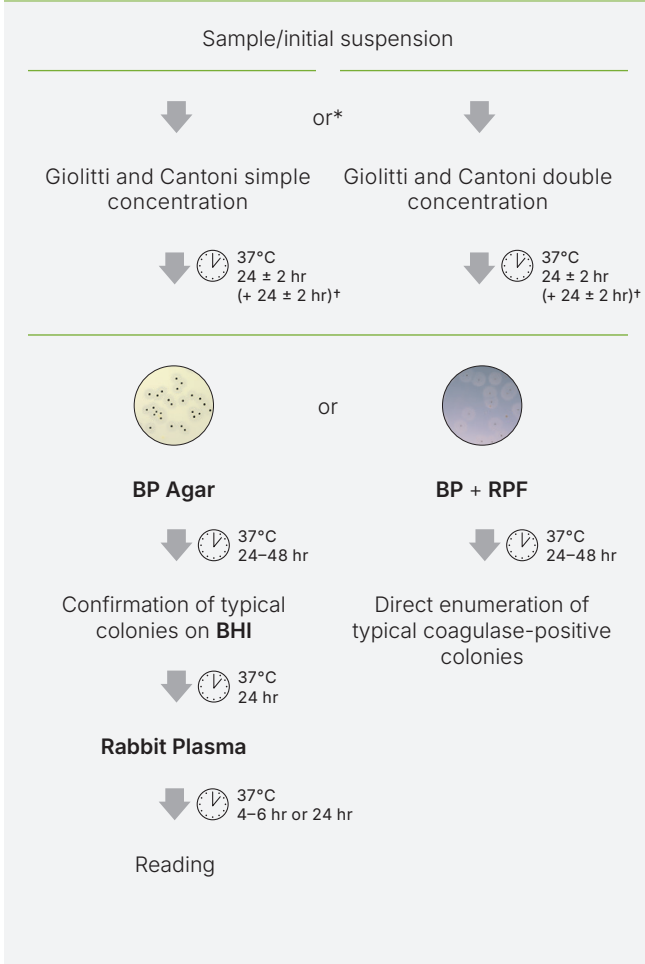
*Please refer to ISO 7218:2007.

Staphylococcus aureus

ISO Standards

ISO 6888-3:2003

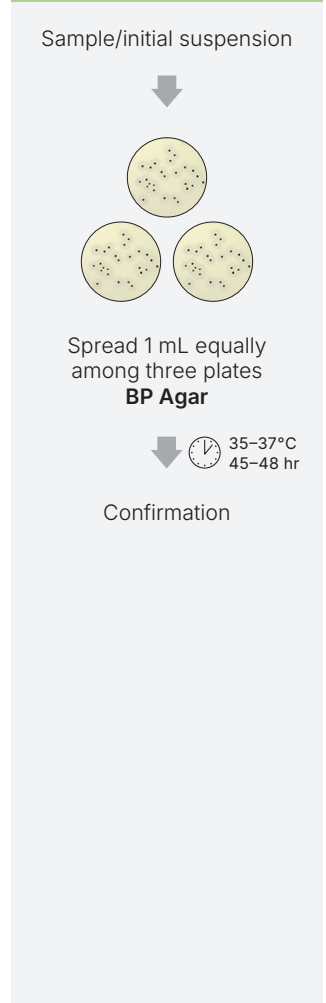
Horizontal method for the enumeration of coagulase-positive *Staphylococci* (*S. aureus* and other species)
 Detection and MPN technique for low numbers



Standard Method

FDA BAM Protocol

Chapter 12: *Staphylococcus aureus*



* For MPN enumeration technique, inoculate single and double concentration broth.
[†] For detection method only, if low or absent colony growth observed after 24 hr.

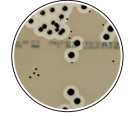
Staphylococcus aureus



Staphylococcus
coagulase-
positive



Staphylococcus
coagulase-
negative



RAPID[®] Staph agar

Alternative Method

RAPID[®] Staph

Enumeration of coagulase-positive staphylococci



Sample/initial suspension



RAPID[®] Staph



37°C
24 ± 2 hr

Enumeration and confirmation



Pastorex Staph Plus Latex
or
Spot on **Baird-Parker for RPF**

Ordering Information

Catalog # Description

Additives

Egg Yolk with Potassium Tellurite
3554205 25 mL x 1 bottle

Sulfamethazine Solution (0.2%)
3562682 2.5 mL x 1 vial

**Baird-Parker (BP) Agar
Complete medium**
3563991 90 mm x 20 dishes

Base
3564814 500 g

**Baird-Parker for RPF Agar
(BP + RPF)
Complete medium**
3563996 90 mm x 20 dishes
3578618 90 mL x 6 bottles
+ 6 vials of suppl.

Dehydrated base
3564814 500 g

**Rabbit Plasma Fibrinogen (RPF)
Supplement**
3564618 10 vials

**Brain Heart Infusion (BHI) Broth
Ready to use**
3553664 10 mL x 25 tubes

Pastorex Staph Plus Latex
3556353 5 x 50 tests
3556356 50 tests

**Rabbit Plasma
Freeze-dried**
3556352 Pack for 20 reactions

**RAPID[®] Staph Agar
Ready to use**
3563960 90 mm x 20 dishes

Dehydrated base
3564704 500 g

Vibrio spp.

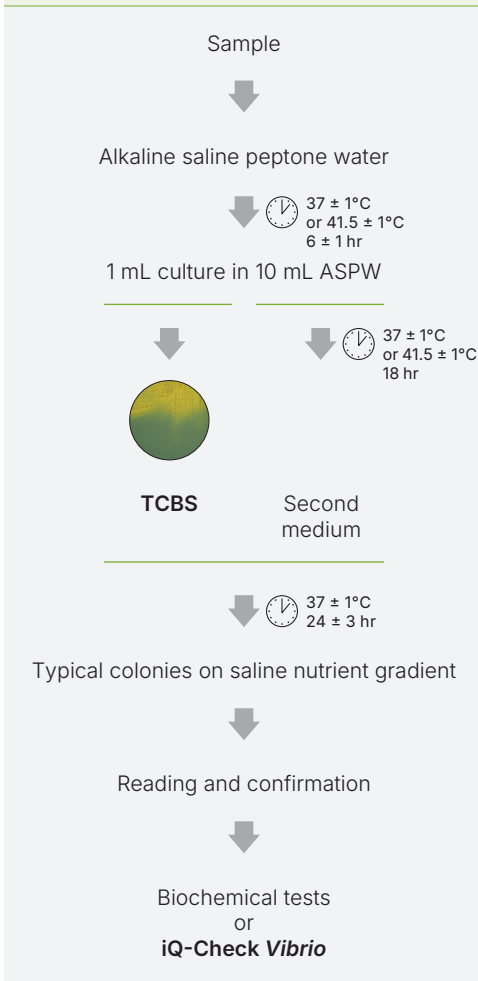
ISO Standard

ISO 21872-1:2017

Horizontal method for the determination of *Vibrio* spp.

Microbiology of the food chain

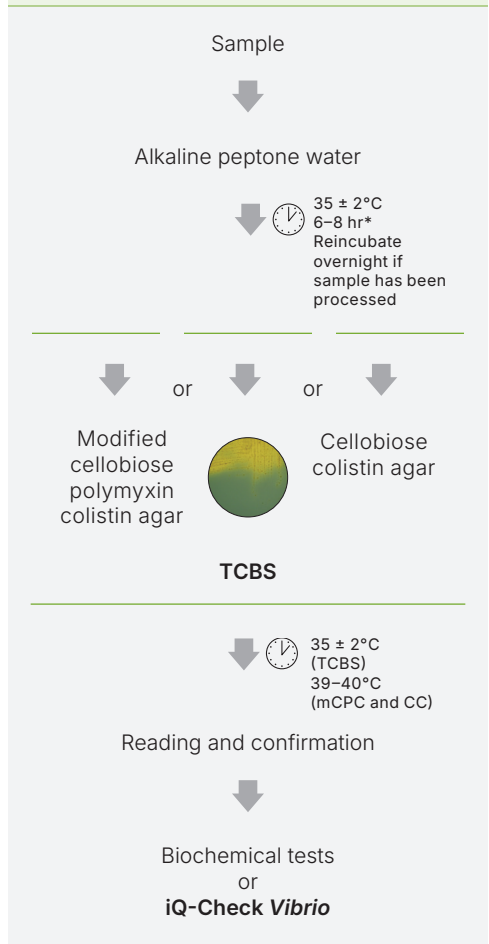
Part 1: Detection of potentially enteropathogenic *V. parahaemolyticus*, *V. cholerae*, and *V. vulnificus*



Standard Method

FDA BAM Protocol

Chapter 9: *Vibrio*



*Incubate raw oyster samples in a water bath at $42 \pm 0.2^\circ\text{C}$ for 18–21 hr.

Vibrio spp.

Alternative Method

iQ-Check *Vibrio* Real-Time PCR Kit

Detection of *V. cholerae*, *V. parahaemolyticus*, and *V. vulnificus*



Ordering Information

Catalog # Description

iQ-Check Free DNA Removal Solution
3594970 175 mg

iQ-Check *Vibrio*
12006574 96 tests

Thiosulfate Citrate Bile Saccharose (TCBS)
12017496 100 mL x 6 bottles

***Vibrio* Enrichment Broth Dehydrated**
12007405 500 g

Sample



***Vibrio* Enrichment Broth**



35–37°C
Minimum 7 hr

Bacterial lysis and DNA extraction



Real-time PCR amplification and detection with
iQ-Check *Vibrio*



Automatic results analysis and interpretation

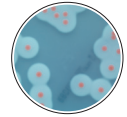


Confirmation of positive results

Bacillus cereus



Bacillus cereus



RAPID *B. cereus*

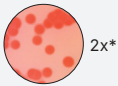
ISO Standard

ISO 7932:2005

General guidance for the enumeration of *B. cereus*

Colony-count technique at 30°C

Sample/initial suspension and following dilution



Mossel (MYP)



30°C
18–24 hr
(+ 24 hr)

Confirmation test on
5 well-isolated colonies



Columbia Sheep Blood Agar



30°C
24 ± 2 hr

Reading and interpretation

Alternative Method

RAPID *B. cereus*

Enumeration of
Bacillus cereus group



Initial suspension
(decimal dilutions)



RAPID *B. cereus*



30 ± 1°C
24 ± 3 hr

Direct enumeration

Ordering Information

Catalog #	Description
Columbia Sheep Blood Agar Ready to use 3563784	90 mm x 20 dishes

Mossel Agar (Mannitol Egg Yolk Polymixin) Dehydrated base 3569604	500 g
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RAPID <i>B. cereus</i> Ready to use 12007304	90 mm x 20 dishes
--	-------------------

Dehydrated base 12007305	500 g
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Supplement 1 12007306	10 vials
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Supplement 2 12007307	10 vials
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*Please refer to ISO 7218:2007.

Aspergillus spp.

Alternative Method

iQ-Check *Aspergillus* Real-Time PCR Kit

Detection of *A. flavus*, *A. fumigatus*, *A. niger*, and *A. terreus* in cannabis and cannabis-infused products



Sample



BPW + chloramphenicol



Bacterial lysis and DNA extraction



Real-time PCR amplification and detection with
iQ-Check *Aspergillus*



Automatic results analysis and interpretation



Confirm PCR results following AOAC SMPR 2019.001 Section 7(2)



Confirmation of species with
iQ-Design Assay *Aspergillus niger*
iQ-Design Assay *Aspergillus flavus*
iQ-Design Assay *Aspergillus fumigatus*
iQ-Design Assay *Aspergillus terreus*

Ordering Information

Catalog # Description

Buffered Peptone Water (BPW)

BPW Plus

Ready to use

3554179 225 mL x 6 bottles

3555790 5 L x 2 bags

3555795 3 L x 4 bags

Dehydrated

3564684 500 g

3564686 5 kg

BPW Standard

Ready to use

12013260 5 L x 2 bags

Dehydrated

12013258 5 kg

12013259 500 g

iQ-Check *Aspergillus* Kit

12010806 96 tests

iQ-Check Free DNA Removal

3594970 175 mg

iQ-Check Purification Reagent

12012383 2.5 g

iQ-Design Assay Kits

12015260 iQ-Design Assay
Aspergillus fumigatus,
100 reactions

12015330 iQ-Design Assay
Aspergillus

Identification Positive
Control, 100 reactions

12015336 iQ-Design Assay
Aspergillus niger, 100
reactions

12015337 iQ-Design Assay
Aspergillus flavus, 100
reactions

12018492 iQ-Design Assay
Aspergillus terreus, 100
reactions







12018493 iQ-Design Assay
Aspergillus + terreus
Positive Control, 100
reactions

17006992 iQ-Design Assay
Aspergillus
Identification Solution,
100 reactions

17007081 iQ Multiplex Powermix,
50 reactions

Sulfite-Reducing Bacteria

ISO Standards

<p>ISO 15213-1:2023</p> <p>Horizontal method for the detection and enumeration of <i>Clostridium</i> spp. Microbiology of food and animal feeding stuffs</p> <p>Part 1: Enumeration of sulfite-reducing <i>Clostridium</i> spp. by colony-count technique</p>	<p>ISO 15213-2:2023</p> <p>Horizontal method for the detection and enumeration of <i>Clostridium</i> spp. Microbiology of food and animal feeding stuffs</p> <p>Part 2: Enumeration of <i>Clostridium perfringens</i> by colony-count technique</p>
<p>Food sample/initial suspension</p> <p>↓  Heat treatment 10 min at 80°C</p> <p>Dilution</p> <p>↓</p> <p> 2x*</p> <p>ISA</p> <p>↓  Anaerobic condition 37°C 48 hr</p> <p>Reading and confirmation</p> <p>↓</p> <p>Columbia Sheep Blood Agar + Another nonselective agar</p>	<p>Food sample/initial suspension</p> <p>↓  Heat treatment 10 min at 80°C</p> <p>Dilution</p> <p>↓</p> <p> 2x*</p> <p>TSC</p> <p>↓  Anaerobic condition 37°C 20 ± 2 hr</p> <p>Reading and confirmation</p> <p>↓</p> <p>SIM Agar or Acid phosphate test</p>

Ordering Information

Catalog # Description

Tryptose Sulfite Cycloserine (TSC) Agar without D-Cycloserine Agar—Base Medium

Ready to use (to be supplemented)
3554419 100 mL x 6 bottles

Dehydrated base
3569644 500 g

Columbia Sheep Blood Agar

Ready to use
3563784 90 mm x 20 dishes

*Please refer to ISO 7218:2007.

Clostridium perfringens



Clostridium perfringens



TSC

ISO Standard

ISO 7937:2005
 Horizontal method for the enumeration of *Clostridium perfringens*
 Colony-count technique
 Microbiology of food and animal feeding stuffs

Ordering Information

Catalog #	Description
Lactose Sulfite Broth Base	
3564914	100 g
Tryptose Sulfite Cycloserine (TSC) Agar without D-Cycloserine Agar—Base Medium	
Ready to use (to be supplemented)	
3554419	100 mL x 6 bottles
Dehydrated base	
3569644	500 g

Food sample/initial suspension



TSC
 (add D-cycloserine)

Anaerobic condition 37°C
 20 ± 2 hr

Enumeration of typical black colonies

Confirmation of 5 isolated colonies with Thioglycolate + Resazurin Broth

37°C
 21 ± 3 hr

Lactose Sulfite Broth

46°C
 24 hr

C. perfringens
 black precipitate/gas +

37°C
 21 ± 3 hr

Mobility Nitrate

37°C
 21 ± 3 hr

C. perfringens
 red coloration/gas +

37°C
 21 ± 3 hr

Lactose Gelatin

37°C
 21 ± 3 hr

C. perfringens
 yellow/gas +

*Please refer to ISO 7218:2007.

Shigella

ISO Standard

ISO 21567:2005

Horizontal method for the detection of *Shigella* spp.

Food sample/initial suspension



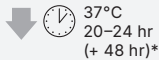
Shigella Broth + Novobiocin
pH 7 ± 0.2



Plating



MacConkey



XLD



Hektoen



Spot on typical colonies on Nutrient (2.1%)



Biochemical and serological confirmation

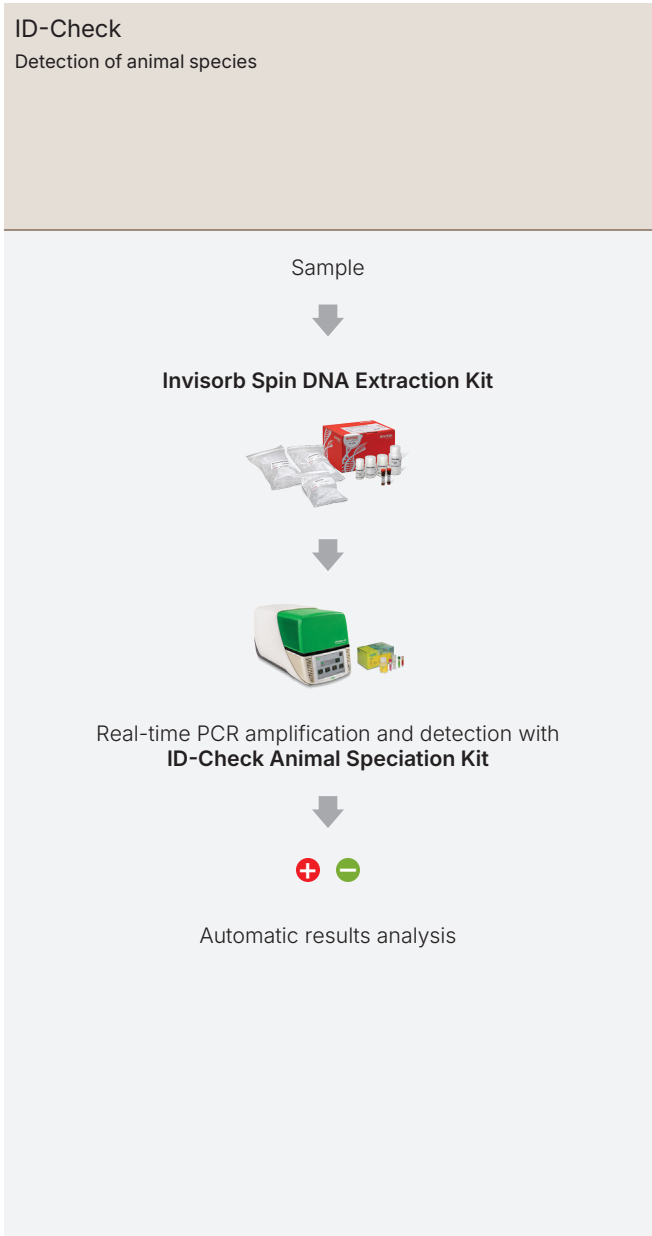
Ordering Information

Catalog #	Description
MacConkey + Crystal Violet Agar Ready to use 3563617	90 mm x 20 dishes
Dehydrated 3569084	500 g
Xylose Lysine Desoxycholate (XLD) Agar Ready to use 3541751	90 mm x 20 dishes
Dehydrated 3569124	500 g

Visit bio-rad.com/antiseria for a complete list of our *Shigella* antisera.

*If low or absent colony growth observed after 24 hr.

Meat Speciation



Ordering Information

Catalog #	Description
Invisorb Spin Tissue Extraction Kit 12019412	100 preps
ID-Check Swine Speciation Kit 12019385	100 reactions
ID-Check Sheep Speciation Kit 12019393	100 reactions
ID-Check Bovine Speciation Kit 12019403	100 reactions
ID-Check Goat Speciation Kit 12019404	100 reactions
ID-Check Duck Speciation Kit 12019411	100 reactions
ID-Check Chicken Speciation Kit 12019421	100 reactions
ID-Check Horse Speciation Kit 12019423	100 reactions
ID-Check Turkey Speciation Kit 12019431	100 reactions

Validations



	AOAC	NF VALIDATION*	Health Canada	NordVal	MicroVal
iQ-Check Real-Time PCR Methods					
<i>Aspergillus</i> spp.	✓				
<i>Campylobacter</i> spp.	✓				
<i>Cronobacter</i> spp.		✓			
<i>Escherichia coli</i> O157:H7	✓	✓			
<i>Listeria monocytogenes</i>	✓	✓	✓	✓	
<i>Listeria</i> spp.	✓	✓	✓		
<i>Salmonella</i> spp.	✓	✓	✓	✓	
<i>S. Enteritidis</i>	✓				
<i>S. Typhimurium</i>	✓				
STEC 7 major O-groups	✓				
STEC virulence genes	✓				✓
<i>Vibrio</i> spp.	✓				
RAPID[®] Chromogenic Methods					
<i>Bacillus cereus</i>		✓			
<i>Campylobacter</i> spp.	✓	✓			
Coliforms	✓	✓	✓	✓	
<i>Cronobacter</i> spp.		✓			
<i>Escherichia coli</i>	✓	✓	✓	✓	
<i>Escherichia coli</i> O157:H7	✓	✓			
<i>Listeria monocytogenes</i>					
Detection	✓	✓	✓	✓	
Enumeration		✓	✓	✓	
<i>Listeria</i> spp.	✓	✓	✓		
<i>Salmonella</i> spp.	✓	✓	✓	✓	
<i>Staphylococcus aureus</i>				✓	

*Alternative analytical methods for agrifood — nf-validation.afnor.org/en.

✓ Approved

Visit bio-rad.com/validations to review our product performance summaries and to view the complete list of validated matrices.

Click the certificate icons in this guide for information about validation certificates.

Quality and Certification

Our quality policy, which is the result of our dedicated efforts to food and water environmental and surface testing, is based on a constant commitment to improvement.

Within the scope of the CE labeling process for all of its medical diagnostic activities, a number of Bio-Rad sites received ISO 13485 certification in 2002. Bio-Rad's ISO 9001 version 2000 certification is also maintained for all of its activities.

United States Department of Agriculture (USDA) and U.S. Food and Drug Administration (FDA) inspections have confirmed Bio-Rad's quality systems' and products' compliance with U.S. regulatory standards.

Production

From the delivery of raw materials right up to marketing of the finished products, Quality Assurance applies to every product manufactured by Bio-Rad. Each batch of finished products undergoes strict quality control testing and is marketed only if it complies with acceptance criteria.

All documentation relating to the production and quality control of a given batch is archived.

ISO/IEC 17025 Accreditation

ISO/IEC 17025 accreditation allows solution manufacturers and user laboratories to demonstrate that they operate competently and use reliable and valid products for reliable and valid results. The Bio-Rad culture media quality control laboratory in Steenvoorde, France is ISO/IEC 17025 accredited (N° 1-6642 by COFRAC Essais). Scope of accreditation is available at cofrac.fr.

Distribution

Stock is maintained in a temperature-controlled environment with barcode readings of code, batch, expiration date, product status, commercial validity, and country authorization verified at each step in product storage and distribution.

Normally, products are transported at room temperature. Bio-Rad takes shipping-related stress conditions into account when developing reagents. This allows reagents to be carried via standard shipping services. For those rare instances when a product's performance cannot be guaranteed under these conditions, Bio-Rad offers specialized methods of transport.

Traceability

All Bio-Rad products can be traced electronically, making it possible to identify the customer(s) linked with a specific product and/or batch or serial number.

As part of the company's "reagent vigilance," this traceability makes it possible to inform clients when there's a problem with a particular batch or lot number, to indicate any actions to be taken based on the results, and, where applicable, to recall a given product.

Documents and Certificates

User Guides

For more information about our products, please refer to the user guides.

Depending on the products, our user guides include:

- Applications of the product
- Corresponding standard references
- Product description
- Presentation or type(s) of packaging offered
- Stock status
- Typical formula
- Necessary product(s) or material(s) that are not supplied
- Detailed protocols
- Special precautions for use
- Quality controls indicating test strains and expected results

All of our user guides are available on our website.

Quality Control Certificates

These certificates have been established for every product and indicate all the control tests carried out on the finished product, the expected specifications, and the results obtained.

These documents can be consulted online and can be downloaded in PDF format by using a product code and batch number.

Safety Data Sheets

These are established by our Department of Regulatory Affairs for every product containing hazardous substances and are recorded in the product reference information. These safety data sheets are available upon request.

Certificates of Health and Origin

These documents, available during audit, are delivered to us by our suppliers for peptones of animal origin when they are elements in the composition of a product.

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Bio-Rad
Laboratories, Inc.

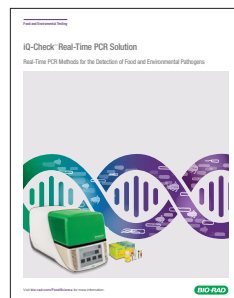
Life Science
Group

Website bio-rad.com **USA** 1 800 424 6723 **Australia** 61 2 9914 2800 **Austria** 00 800 00 24 67 23 **Belgium** 00 800 00 24 67 23 **Brazil** 55 11 3065 7550 **Canada** 1 800 361 1808 **China** 86 21 6169 8500 **Czech Republic** 00 800 00 24 67 23 **Denmark** 00 800 00 24 67 23 **Finland** 00 800 00 24 67 23 **France** 00 800 00 24 67 23 **Germany** 00 800 00 24 67 23 **Greece** 30 210 7774395 **Hong Kong** 852 2789 3300 **Hungary** 00 800 00 24 67 23 **India** 91 124 4028300 **Israel** 090 800 00 24 67 23 **Italy** 00 800 00 24 67 23 **Japan** 81 3 6361 7000 **Korea** 82 080 007 7375 **Luxembourg** 00 800 00 24 67 23 **Mexico** 52 55 5488 7670 **The Netherlands** 00 800 00 24 67 23 **New Zealand** 64 9 415 2280 **Norway** 00 800 00 24 67 23 **Poland** 00 800 00 24 67 23 **Portugal** 00 800 00 24 67 23 **Russian Federation** 7 495 721 14 04 **Singapore** 65 6415-3170 **South Africa** 27 21 531 7504 **Spain** 00 800 00 24 67 23 **Sweden** 00 800 00 24 67 23 **Switzerland** 00 800 00 24 67 23 **Taiwan** 886 2 2578 7189 **Thailand** 662 6518311 **United Arab Emirates** 971 4 818 7300 **United Kingdom** 00 800 00 24 67 23

Brochures



RAPID'Chromogenic
Media Brochure
Bulletin 16288



iQ-Check Real-Time PCR
Solution Brochure
Bulletin 16439

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