



Water Safety

Guide for Bio-Rad Products in Water Testing

BIO-RAD

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This booklet is only an indication provided by Bio-Rad for the use of Bio-Rad products.
It is not a contractual document.



Total flora

EN ISO 6222 (07/1999)

Water quality
Enumeration of culturable micro-organisms.
Colony-count by inoculation
in a nutrient agar culture medium.

Pour-Plate method

Water sample
(preparation)



PCA without Dextrose

⌚ 68 hrs
22°C



⌚ 44 hrs
36°C



Reading/
enumeration

Reading/
enumeration

Ordering Information**Catalog # Description****DSM + Bromophenol Blue**

3554282 18 ml x 60 tubes

DSM (Dehydrated Special Microplates Diluent)

3553784 100 g

EDS (Distilled Water for Microplates)

3554283 18 ml x 60 tubes

Fluoplate™ 2 Software

Data management software for the statistical estimation of MPN and its confidence interval
Please contact your local representative

MUG/EC E. coli Microplates Kit

3553785 25 opaque white plates with stickers

3553782 25 transparent plates with stickers

Long-Wave UV Lamp, Compact Portable

1660500 1 lamp (366 nm, requires 4 AA batteries)

Portable UV Observation Chamber (without Wood Lamp)

3550717 1 chamber

Square Petri Dishes

3550304 120 mm x 252 units

UV Observation Chamber (Wood Lamp)

3550718 1 UV tube (366 nm)

Key Benefits

- Statistical control of the input values
- Creation of a database easily exportable into Excel™ or Access™
- Multi-language software and reports: English, French, Spanish, Italian and German

"Excel" is a trademark of Microsoft
"Access" is a trademark of Access Systems

E. coli - EN ISO miniaturized MPN standard (with Fluoplate™ 2 Software)**EN ISO 9308-3 (03/1999)**

Water quality

Detection and enumeration of *Escherichia coli* and coliforms bacteria
Part 3: Miniaturized method (Most Probable Number) for the detection and enumeration of *E. coli* in surface and residual water

Water sample (dilutions in DSM or EDS)


MUG/EC (microplates)
  36-72 hrs 44°C

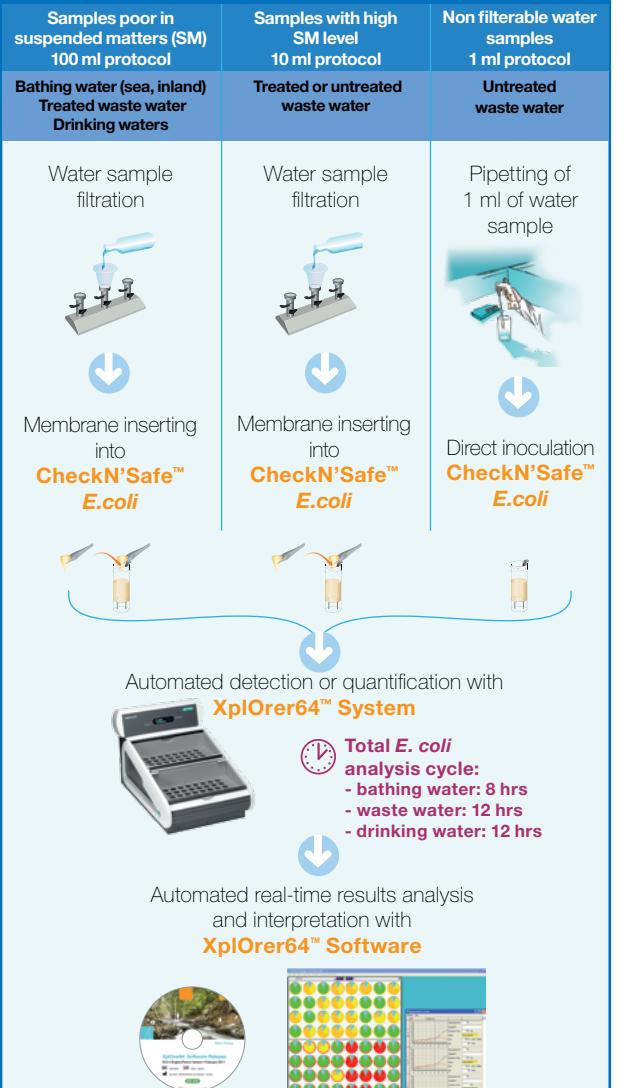
Reading ($\lambda = 366 \text{ nm} - \text{UV light}$)

UV Lamp

Calculation and interpretation
Fluoplate™ 2 Software

**E. coli - Automated alternative method: XpIOrer64™ System**

Automated real-time and continuous quantification of *Escherichia coli* in bathing (coastal sea and inland water) and waste waters

**Ordering Information****Catalog # Description****XpIOrer64™ System****Full Configuration (220/110V)**

XpIOrer64 System for up to 64 samples, delivered with computer, UPS, color printer, CheckN'Safe™ temperature control cells, cleaning box and 4 racks

XpIOrer64™ System Configuration w/o PC (220V)

XpIOrer64 System 220V for up to 64 samples, CheckN'Safe™ temperature control cells, cleaning box and 4 racks

XpIOrer64™ System Configuration w/o PC (110V)

XpIOrer64 System 110V for up to 64 samples, CheckN'Safe™ temperature control cells, cleaning box and 4 racks
Please contact your local representative

CheckN'Safe™ E.coli Kit

3554720 9 ml x 60 tests

CheckN'Safe™ Screw Caps

3593457 Sterile caps (1 bag of 30 units)

Key Benefits

- Easy-to-use and automated method to quantify *E. coli* in real-time, without confirmation
- Random access for up to 64 samples analyzed simultaneously
- Fast Results:
2.000 E. coli/100 ml detected in 4 hrs 20 min
500 E. coli/100 ml detected within 5 hrs
- Automatic expression of results according to 76/160/EEC or 2006/7/EC European Directive
- Accurate alternative method compared to miniaturized MUG/EC Microplates

Ordering Information**Catalog # Description****BCP (Bromocresol Purple)****Lactose/Broth**

3553414 10 ml x 25 tubes

BGBLB (Brilliant Green Bile Lactose Broth)

3578024 10 ml x 25 tubes

Kovacs Reagent

3555313 15 ml x 2 bottles

Peptone Water (without Indole)/Broth

3554180 9 ml x 25 tubes

3564334 500 g

Schubert/Broth

3569634 500 g

Tergitol 7 (0.2%)/Supplement

3562632 50 ml x 1 bottle

3562635 5 ml x 1 vial

TTC (0.05%)/Supplement

3562652 50 ml x 1 bottle

3562655 5 ml x 1 vial

TTC Tergitol 7/Agar – Base Medium

3554687 200 ml x 6 bottles

3564454 500 g

TTC Tergitol 7/Agar – Complete Medium

3563706 55 mm x 10 dishes

3563980 55 mm x 100 dishes

Trypto-Casein-Soy (TSA)/Agar

3563884 90 mm x 20 dishes

3555944 8 ml x 25 slanted tubes

3564554 500 g

Tryptophan Broth

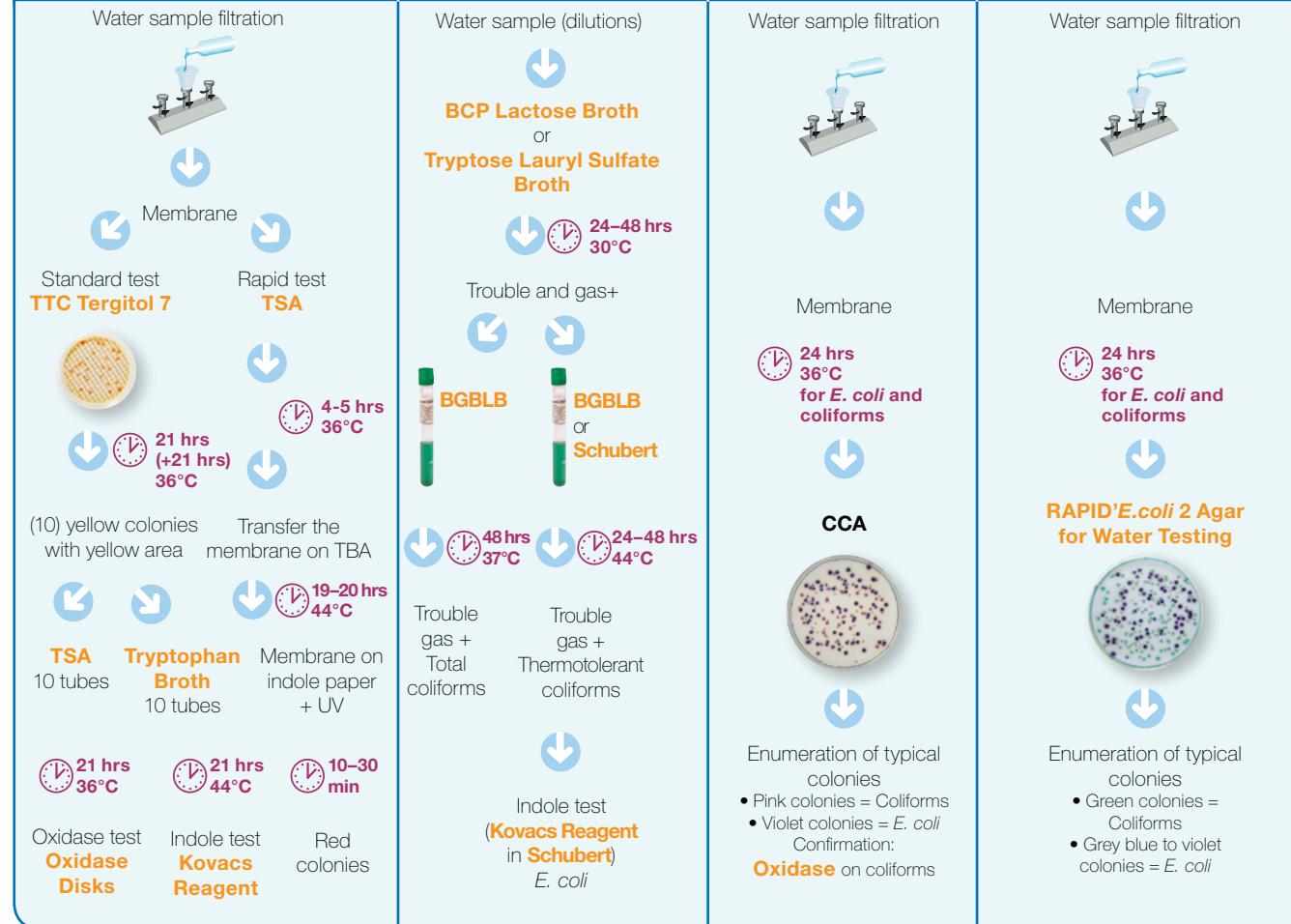
3554194 3 ml x 25 tubes

Tryptose Lauryl Sulfate Broth

3564774 500 g

Oxidase Disks

3553834 2 x vials of 50 oxidase disks

E. coli/Coliforms - NF EN ISO standards**EN ISO 9308-1 (09/2000)**Water quality
Detection and enumeration of
Escherichia coli and coliforms bacteria
Part 1: Membrane-filtration method**NF T90-413 (10/1985)**Water testing
Detection and enumeration of
coliforms and thermotolerant
coliforms
General method by culture in
liquid media (MPN)**EN ISO 9308-1:2014**Water quality – Enumeration
of *Escherichia coli* and
coliform bacteria – Part 1:
Membrane filtration method
for waters with low bacterial
background flora**RAPID'E.coli 2 for Water Testing**Chromogenic agar medium for the
direct detection and enumeration
of *E. coli* and coliforms, by
membrane-filtrationBRD 07/20-03/11
WATER ANALYSIS METHODS
www.nf-validation.afnor.org/en**Ordering Information****Catalog # Description****RAPID'E.coli 2 for Water Testing, Kit**

3555296 6 bottles of agar + 6 bottles of supplement

**RAPID'E.coli 2 Agar for Water Testing**

3563982 55 mm x 20 dishes

Ready to use (to be supplemented)

3555297 200 ml x 6 bottles

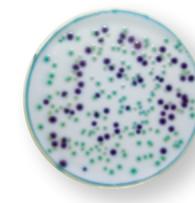
3555299 100 ml x 6 bottles

Dehydrated base

3564024 500 g

Supplement

3555298 6 vials of supplement

**Key Benefits**

- Certified by NF VALIDATION
- One single plate for simultaneous *E. coli* and coliforms testing
- Complete results within 21 ± 3 hrs at just one temperature of 36°C
- Good colony coloration contrast for a rapid reading
- No confirmation step required

Ordering Information**Catalog # Description****DSM + Bromophenol Blue**

3554282 18 ml x 60 tubes

DSM (Dehydrated Special Microplates Diluent)

3553784 100 g

EDS (Distilled Water for Microplates)

3554283 18 ml x 60 tubes

Fluoplate™ 2 Software

Data management software for the statistical estimation of MPN and its confidence interval

Please contact your local representative

MUD/SF Enterococci Microplates Kit

3553786 25 opaque white plates with stickers

3553783 25 transparent plates with stickers

Long-Wave UV Lamp, Compact Portable

1660500 1 lamp (366 nm, requires 4 AA batteries)

Portable UV Observation Chamber (without Wood Lamp)

3550717 1 chamber

Square Petri Dishes

3550304 120 mm x 252 units

UV Observation Chamber (Wood Lamp)

3550718 1 UV tube (366 nm)

Key Benefits

- Statistical control of the input values
- Creation of a database easily exportable into Excel™* or Access™**
- Multi-language software and reports: English, French, Spanish, Italian and German

*Excel® is a trademark of Microsoft

**Access® is a trademark of Access Systems

Enterococci - EN ISO miniaturized MPN standard (with Fluoplate™ 2 Software)**EN ISO 7899-1 (03/1999)****Water quality**

Detection and enumeration of *Enterococci* in surface and waste water
Miniaturized method (Most Probable Number) by inoculation in liquid medium

Water sample (dilutions in **DSM** or **EDS**)

**MUD/SF (microplates)**

36-72 hrs
44°C

Reading
(λ = 366 nm - UV light)

UV Lamp

Calculation and interpretation
Fluoplate™ 2 Software

**Enterococci - Automated alternative method: XpIOrer64™ System**

Automated real-time and continuous quantification of intestinal *Enterococci* in bathing water (coastal sea and inland water) and waste waters



BRD 07/19 - 11/09
WATER ANALYSIS METHODS
www.nf-validation.afnor.org/en

Samples poor in suspended matters (SM) 100 ml protocol	Samples with high SM level 10 ml protocol	Non filterable water samples 1 ml protocol
Bathing water (sea, inland) Treated waste water	Treated or untreated waste water	Untreated waste water

Water sample filtration



Membrane inserting into
CheckN'Safe™ Enterococci



Water sample filtration



Membrane inserting into
CheckN'Safe™ Enterococci



Pipetting of 1 ml of water sample



Direct inoculation
CheckN'Safe™ Enterococci



Automated detection or quantification with
XpIOrer64™ System

Total *Enterococci* analysis cycle:
- bathing water: 12.5 hrs
- waste water: 16 hrs

Automated real-time results analysis and interpretation with
XpIOrer64™ Software

**Ordering Information****Catalog # Description****XpIOrer64™ System****Full Configuration (220/110V)**

XpIOrer64 System for up to 64 samples, delivered with computer, UPS, color printer, CheckN'Safe™ temperature control cells, cleaning box and 4 racks

XpIOrer64™ System**Configuration w/o PC (220V)**

XpIOrer64 System 220V for up to 64 samples, CheckN'Safe™ temperature control cells, cleaning box and 4 racks

XpIOrer64™ System**Configuration w/o PC (110V)**

XpIOrer64 System 110V for up to 64 samples, CheckN'Safe™ temperature control cells, cleaning box and 4 racks

Please contact your local representative

CheckN'Safe™ Enterococci Kit

3554721 10 ml x 60 tests

CheckN'Safe™ Screw Caps

3593458 Sterile caps (1 bag of 30 units)

Key Benefits

- First alternative method certified NF VALIDATION for bathing and waste water monitoring
- Easy-to-use and automated method to quantify in real-time, without confirmation
- Random access for up to 64 samples analyzed simultaneously
- Fast Results:
400 Enterococci/100 ml detected in **8 hrs 30 min**
250 Enterococci/100 ml detected within **9 hrs**
- Automatic expression of results according to 76/160/EEC or 2006/7/EC European Directive
- Accurate alternative method compared to miniaturized MUD/SF microplates

Ordering Information**Catalog # Description****BEA/Agar**

3563994 90 mm × 20 dishes
3564184 500 g

TTC (0.2%)/Supplement

3562665 5 ml × 1 vial

Slanetz and Bartley/Agar**Base Medium**

3554819 100 ml × 6 bottles
3564934 500 g

Slanetz and Bartley/Agar**Complete Medium**

3563716 55 mm × 10 dishes
3563981 55 mm × 100 dishes

Enterococci* - EN ISO standard*NF EN ISO 7899-2 (08/2000)**

Water quality
Detection and enumeration
of intestinal *Enterococci*
Part 2: Membrane-filtration method

Water sample filtration



Membrane

**Slanetz and Bartley**

🕒 44 hrs
36°C



Reading
Transfer the membrane on **BEA**

🕒 2 hrs
44°C

Reading/enumeration

***Enterococci* - RAPID'Enterococcus**
alternative method**RAPID'Enterococcus**

Chromogenic agar for
the direct detection and enumeration
of intestinal *Enterococci*,
by membrane-filtration

Water sample filtration



Membrane

**RAPID'Enterococcus**

🕒 8–10 ml per plate
(Ø = 55 mm)



🕒 44 hrs ± 4 hrs
44°C

Enumeration of typical colonies
• Blue colonies = *Enterococcus*

Ordering Information**Catalog # Description****RAPID'Enterococcus**

3554409 100 ml × 6 bottles

**Key Benefits**

- Direct identification and enumeration of *Enterococci*
- No confirmation step required
- Ready-to-use medium
- Save time and material

Ordering Information**Catalog # Description****Columbia/Agar**

3564674 500 g
3564678 5 kg

Meat-Liver Sulfite Iron/Agar Complete Medium

3554777 20 ml x 25 tubes
3554794 7.5 ml x 25 tubes
3569654 500 g

TSC without D-Cycloserine/Agar Base Medium

3554419 100 ml x 6 bottles
3569644 500 g



Meat-Liver Sulfite Iron Agar

Sulfite-Reducing Anaerobes (*Clostridium*) - NF EN ISO standards**NF T90-415 (10/1985)**

Water testing

Detection and enumeration of spores of sulfite-reducing anaerobic bacteria and of *Clostridium*
General method by incorporation of agar in deep tubes

NF EN 26461-1 (07/1993)

Water quality

Detection and enumeration of spores of sulfite-reducing anaerobic micro-organisms (*Clostridia*)
Part 1: method by enrichment in a liquid medium

ISO/DIS 6461-2 (06/2005)**(ISO 6461-2:1986 review)**

Water quality

Detection and enumeration of the spores of sulfite-reducing anaerobes (*Clostridia*).
Part 2: Membrane-filtration method

Water sample (preparation)

**Meat-Liver Sulfite Iron**

Anaerobic conditions



Reading

Anaerobic conditions



Reading/enumeration

Water sample (preparation)



DRCM

Anaerobic conditions



Reading/enumeration

Water sample (preparation)



Water sample filtration



Membrane

**TSC without D-Cycloserine**

Anaerobic conditions



Reading/enumeration

Confirmation
(Columbia Agar)

Ordering Information**Catalog # Description****BCYE Biplate/Agar**

3563718 90 mm × 20 dishes

BCYE with L-Cysteine/Agar

3563720 90 mm × 20 dishes

BCYE without L-Cysteine/Agar

3563722 90 mm × 20 dishes

Columbia Agar + Horse Blood/Agar

3563804 90 mm × 20 dishes

GVPC/Agar

3563717 90 mm × 20 dishes

3563719 90 mm × 100 dishes

Legionella pneumophila Latex Kit

3562790 50 tests

Legionella pneumophila and Legionella Species Latex Kit

3562795 50 tests

MonoFluo™ Kit**Legionella pneumophila**

3532514 24 tests

Nutrient/Agar (for Water Testing)

3563786 90 mm × 20 dishes

Long-Wave UV Lamp, Compact Portable

1660500 1 lamp (366 nm, requires 4 AA batteries)

Portable UV Observation Chamber (Without Wood Lamp)

3550717 1 chamber

UV Observation Chamber (Wood Lamp)

3550718 1 UV tube (366 nm)

Legionella spp. & Legionella pneumophila – NF EN ISO standard methods**ISO 11731 (05/1998):**

Water quality

Detection and enumeration of *Legionella***NF EN ISO 11731-2 (07/2008):**

Water quality

Detection and enumeration of *Legionella*

Part 2: Direct membrane-filtration method for water with low bacterial counts

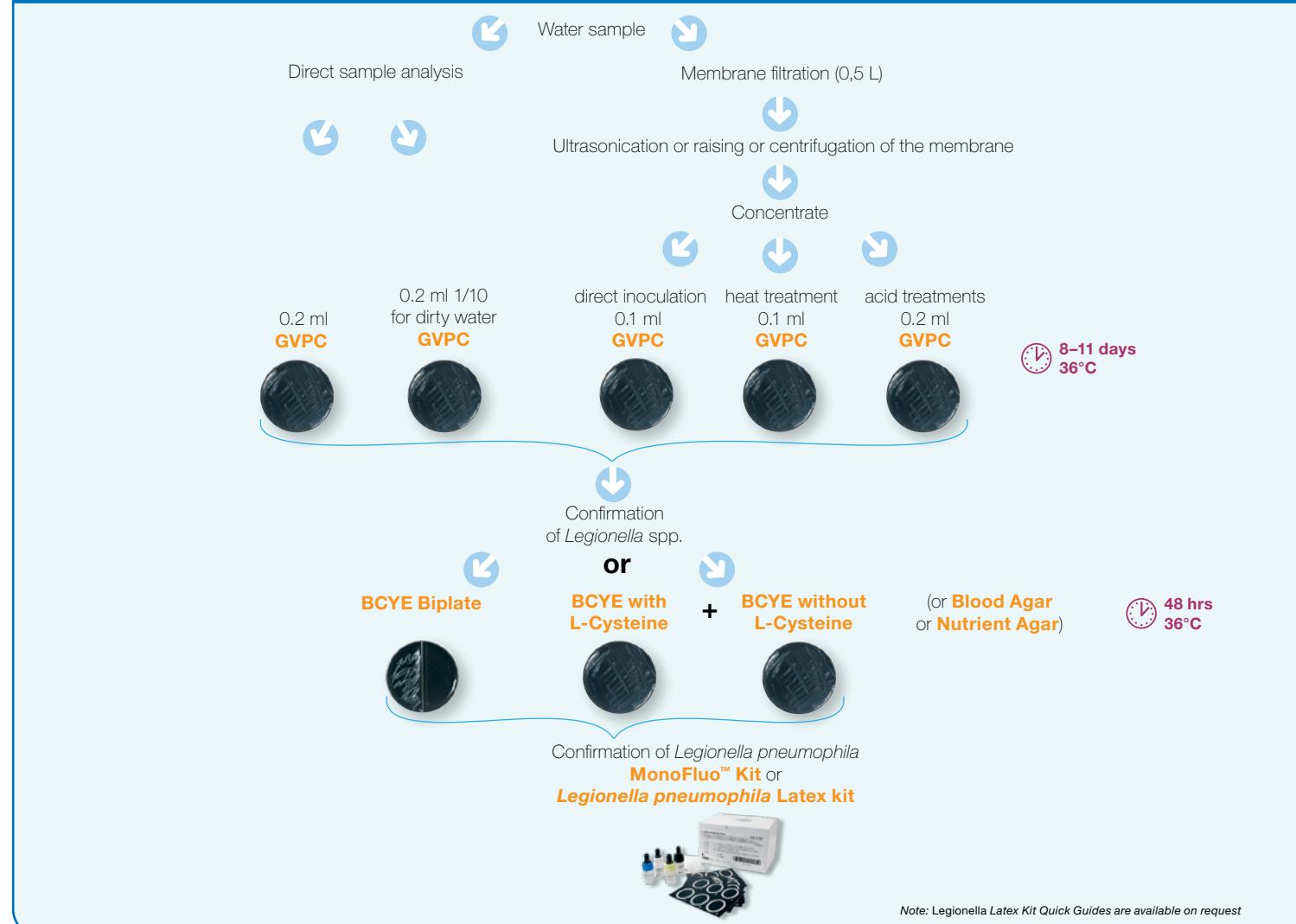
NF T90-431 (11/2014):

Water quality

Detection and enumeration of *Legionella* spp. and *Legionella pneumophila*

Method by direct inoculation

and after concentration by membrane filtration or centrifugation



Ordering Information**Catalog # Description****Aquadien™ Kit**

3578121 96 tests



Also available:
Protocol for clogging samples

Aquadien W2, Wash Solution

3578119 48 tests

Aquadien Lysis Solution3578125 5 ml x 1 bottle, sufficient for
32 air samples**Key Benefits**

- High extraction yield
- Compatible with all type of water (drinking water as well as cooling tower)
- NF VALIDATION certified
- Ready-to-use reagents
- Easy protocol

Legionella DNA Extraction Kit - Bio-Rad solution**Extraction step****Aquadien DNA Extraction Kit**

NF VALIDATION certified
Water quality — Detection and
and/or *Legionella pneumophila*
amplification by polymerase

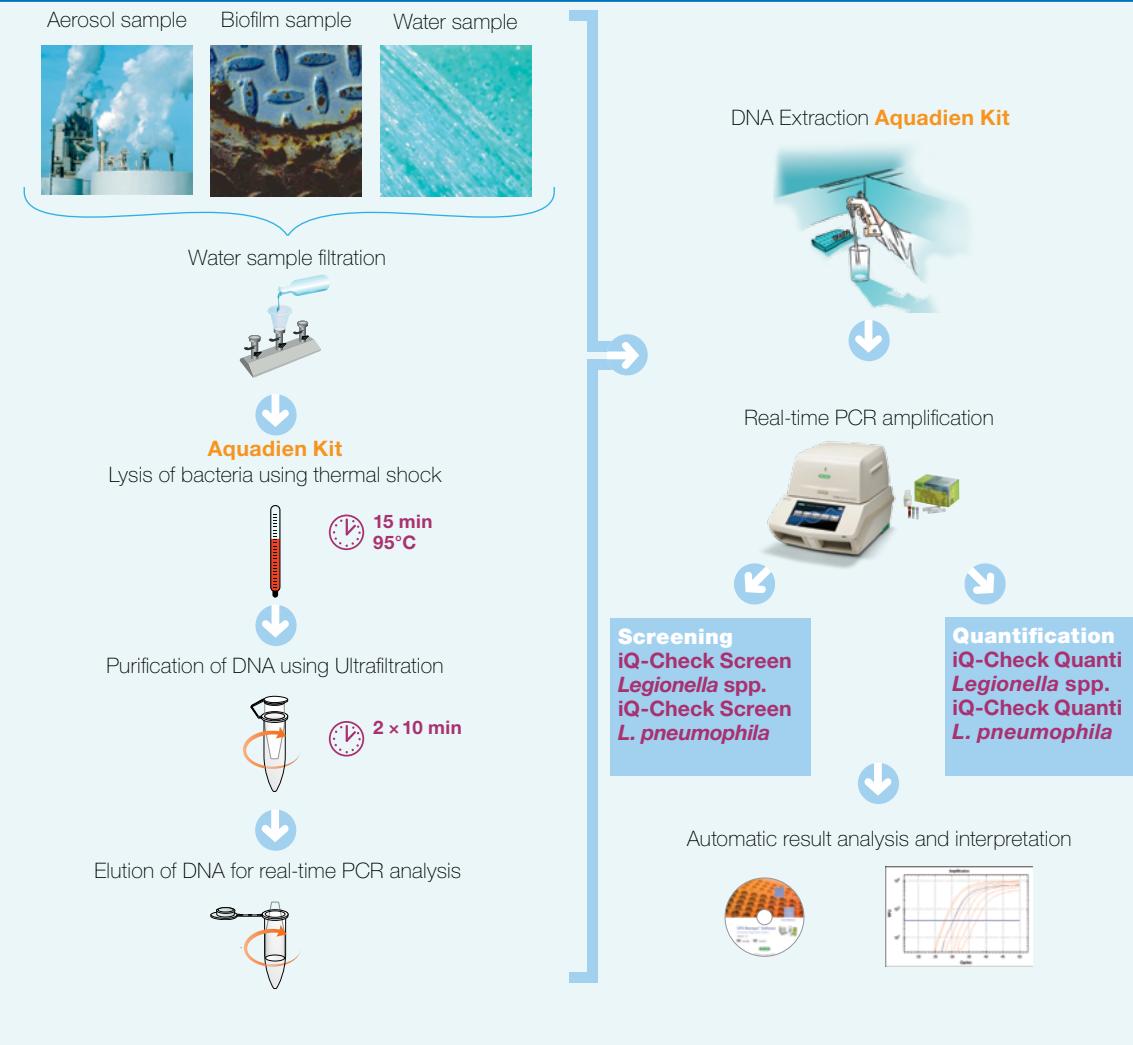
Legionella spp. and Legionella pneumophila
Alternative real-time PCR method

Analysis step**iQ-Check Legionella real-time PCR Kits**

BRD 07/15 – 12/07

BRD 07/16 – 12/07

WATER ANALYSIS METHODS
<http://nf-validation.afnor.org>

**Ordering Information****Catalog # Description****Reagent Kits****iQ-Check® Quanti Legionella spp. Kit**

3578102 96 tests

iQ-Check® Quanti L. pneumophila Kit

3578103 96 tests

iQ-Check® Screen Legionella spp. Kit

3578104 96 tests

iQ-Check® Screen L. pneumophila Kit

3578105 96 tests

Instruments and Software**Real-time PCR Cycler**3594990 CFX96 Touch™ Deep Well
Real-Time PCR Detection
System**Software**3593893 CFX Manager™ Software
Industrial Diagnostic Edition**Documentation****Method Validation Guide
(NF T90-471)**

Please contact your local representative

Key Benefits

- Just 4 hours to the result without confirmation
- Detection of *Legionella* spp. and *L. pneumophila* in the same assay
- A 96-wells format adaptable to all routine throughput
- Ready-to-use reagents
- Fully automated results analysis
- Reference Material provided
- Connected to the Standard Reference Material
- NF VALIDATION certified

Ordering Information**Catalog # Description****Reagent****Aquadien™ Lysis Solution**

Please contact your local representative

Instruments**CIP10-M® Air Sampler/220V**3593084 1 sampler and accessories
for 3 sampling**CIP10-M® Air Sampler/110V**3593094 1 sampler and accessories
for 3 sampling

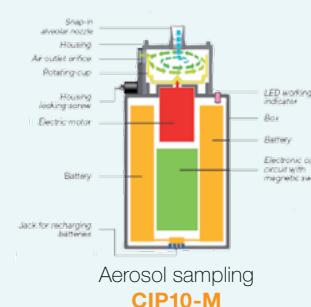
* The CIP10-M Air Sampler is a product of Tecora



CIP10-M Air Sampler

Key Benefits

- Simulates human breath
- Ergonomic
- Portable
- Free of cross contamination
- Suitable for both culture media and real-time PCR analysis

**Legionella detection in aerosols
with CIP10-M Air Sampler — Bio-Rad solution****CIP10-M**Method for the monitoring of airborne micro-organisms,
especially *Legionella* in aerosols
from cooling towers and droplets**Real-time NF T90-471****Standard Culture ISO 11731****Legionella DNA Extraction
Aquadien™ Kit
(See p. 16)****Real-time PCR amplification
iQ-Check® Legionella
Kits
Detection or quantification
(See p. 17)****Legionella detection in biofilms, amoeba — Bio-Rad Technical Notes****Technical note # Description****16186 Aerosols Testing****16995 Biofilms Testing****16225 Intra-amoebic Legionella****Legionella Poster - Ref:PO075 (2011)**Certification of Real-Time PCR Quantification
Methods for *Legionella* spp. and *Legionella*
pneumophila (NF T 90-471 Standard)

Certification of Real-Time PCR Quantification Methods for *Legionella* spp. and *Legionella pneumophila* (NF T 90-471 Standard)

Summary
The performance characteristics of the Legionella DNA extraction kit and iQ-Check® Legionella Kits were evaluated according to the NF T 90-471 standard. The results show that the methods are able to detect *Legionella* spp. and *L. pneumophila* at a concentration of 10³ CFU/ml.

Incubation/Incubation
Performance of probes and probes using the iQ-Check® Legionella Kits was evaluated according to the NF T 90-471 standard. The results show that the methods are able to detect *Legionella* spp. and *L. pneumophila* at a concentration of 10³ CFU/ml.

Management of inhibition with CTW
The iQ-Check kits include an inhibitor control that makes it possible to evaluate the quality of samples analyzed in parallel with the Legionella DNA extraction kit. This study shows that the iQ-Check kits can detect *Legionella* spp. and *L. pneumophila* at a concentration of 10³ CFU/ml.

Table 1. The various steps of the Aquadien and iQ-Check Legionella methods

Step	Aquadien	iQ-Check
Sample collection	✓	✓
Sample preparation	✓	✓
DNA extraction	✓	✓
Real-time PCR amplification	✓	✓

Table 2. Analysis of probe management and PCR detection of Legionella spp. and *L. pneumophila* in H2O extract

Sample	Legionella spp.	<i>L. pneumophila</i>
Water	100%	100%
Amoebae	100%	100%
biofilms	100%	100%
Legionella spp. + amoebae	100%	100%
Legionella spp. + biofilms	100%	100%
Legionella spp. + amoebae + biofilms	100%	100%

Conclusion
The iQ-Check presents 100% reliability with respect to the three states.

Table 3. Analysis of probe management and PCR detection of Legionella spp. and *L. pneumophila* in Legionella culture medium

Sample	Legionella spp.	<i>L. pneumophila</i>
Water	100%	100%
Amoebae	100%	100%
biofilms	100%	100%
Legionella spp. + amoebae	100%	100%
Legionella spp. + biofilms	100%	100%
Legionella spp. + amoebae + biofilms	100%	100%

Table 4. Analysis of probe management and PCR detection of Legionella spp. and *L. pneumophila* in Legionella culture medium

Sample	Legionella spp.	<i>L. pneumophila</i>
Water	100%	100%
Amoebae	100%	100%
biofilms	100%	100%
Legionella spp. + amoebae	100%	100%
Legionella spp. + biofilms	100%	100%
Legionella spp. + amoebae + biofilms	100%	100%

Table 5. Recovery of Aquadien and iQ-Check Legionella DNA extraction protocols

Sample	Legionella spp.	<i>L. pneumophila</i>
Water	100%	100%
Amoebae	100%	100%
biofilms	100%	100%
Legionella spp. + amoebae	100%	100%
Legionella spp. + biofilms	100%	100%
Legionella spp. + amoebae + biofilms	100%	100%

Conclusion
The iQ-Check presents 100% reliability with respect to the three states.

Table 6. Recovery of Aquadien and iQ-Check Legionella DNA extraction protocols

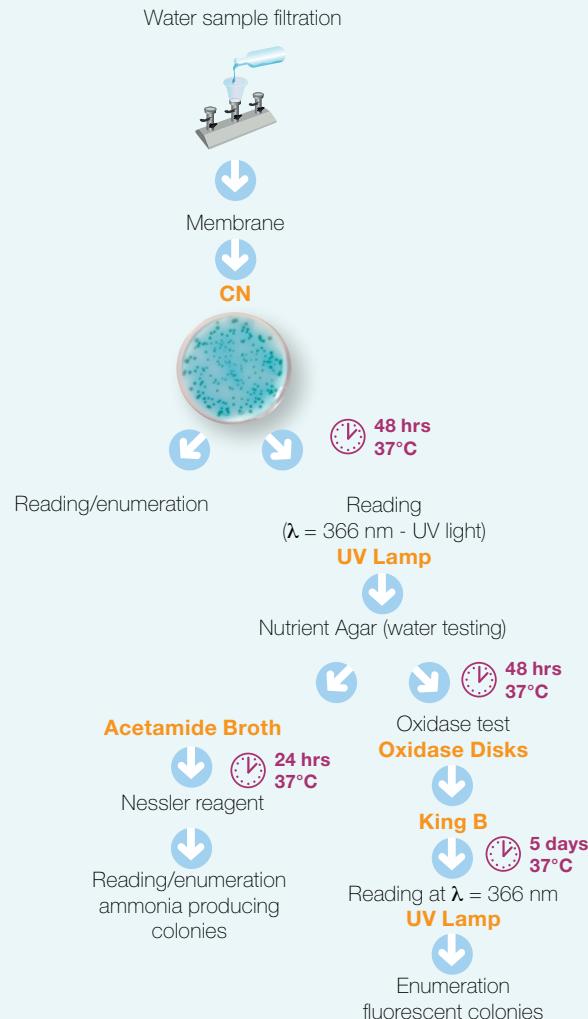
Sample	Legionella spp.	<i>L. pneumophila</i>
Water	100%	100%
Amoebae	100%	100%
biofilms	100%	100%
Legionella spp. + amoebae	100%	100%
Legionella spp. + biofilms	100%	100%
Legionella spp. + amoebae + biofilms	100%	100%

Conclusion
The iQ-Check presents 100% reliability with respect to the three states.

BIO-RAD

Pseudomonas aeruginosa — EN ISO standard**NF EN ISO 16266 (08/2008)**

Water quality
Detection and enumeration of
Pseudomonas aeruginosa
Membrane-filtration method


Pseudomonas aeruginosa
RAPID'P.aeruginosa alternative method


BRD 07/21 – 04/12
WATER ANALYSIS METHODS
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RAPID'P.aeruginosa

Chromogenic agar medium for the direct detection and enumeration of *Pseudomonas aeruginosa* by membrane-filtration


Ordering Information
Catalog # **Description**
Acetamide/Broth

3554355 5 ml × 25 tubes

CN/Agar

3563915 55 mm × 10 dishes
3556034 200 ml × 6 bottles
3564899 500 g

Equipment for Fluorescence Detection

3350717 Portable UV observation chamber (without wood lamp)
3350718 Wood lamp

Long-Wave UV Lamp, Compact Portable

1660500 1 lamp (366 nm, requires 4 AA batteries)

King B/Agar

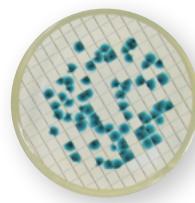
3555278 7 ml × 25 tubes

Oxidase Disks

3553834 2 × vials of 50 oxidase disks

RAPID'P.aeruginosa

3563984 55 mm × 20 dishes
3564900 500 g



RAPID'P.aeruginosa

Key Benefits

- High specificity for a direct enumeration of *Pseudomonas aeruginosa*
- Complete results within 22–30 hrs
- Good colony coloration contrast for a rapid reading
- No confirmation step required

Ordering Information**Catalog # Description**

Brilliant Green Red Lactose Phenol (or Kristensen or Edel and Kampelmacher)/Agar

3564464 500 g

Buffered Peptone Water/Broth

3554179 225 ml x 6 bottles

3564684 500 g

Kligler-Hajna/Agar

3555378 10 ml x 25 slanted tubes

3564844 500 g

LDC-ODC-ADH/Broth

3553725 5 ml x 3 bottles

MKTTn (Muller-Kauffmann Tetrathionate Novobiocin)/Broth

3556140 10 ml x 50 tubes

3564714 500 g

Nutrient Agar (2.1%) without NaCl

3564485 500 g

Physiological Sterile Water (0.85%)

3554164 9 ml x 25 tubes

RVS (Rappaport Vassiliadis Soya)/Broth

3555773 10 ml x 25 tubes

3564324 500 g

TSI (Triple Sugar Iron)/Agar

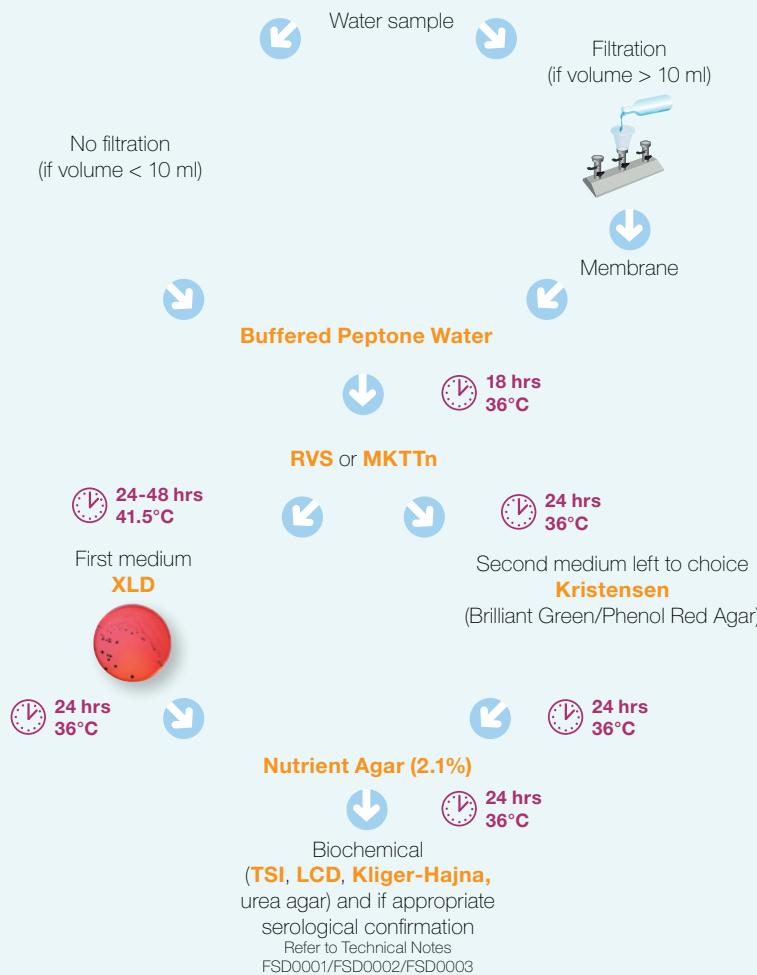
3564384 500 g

XLD (Xylose Lysine Desoxycholate)/Agar

3569124 500 g

Salmonella spp. - ISO standard**ISO 19250 (07/2010)**

Water quality

Detection and enumeration of *Salmonella* species

Ordering Information**Catalog # Description****Baird-Parker/Agar
Base Medium**

3564814 500 g

**Baird-Parker/Agar
Complete Medium**

3563991 90 mm x 20 plates

**Baird-Parker for RPF/Agar
Complete Medium**

3563996 90 mm x 20 plates

3578618 90 ml x 6 bottles
+ 6 vials supplement**BHI (Brain-Heart Infusion)/Broth**

3553664 10 ml x 25 tubes

3564014 500 g

**Chapman Mannitol (for Water
Testing)/Agar**

3563926 55 mm x 10 dishes

3564824 500 g

Egg yolk with potassium tellurite

3554201 5 ml x 1 vial

3554205 25 ml x 1 bottle

Pastorex™ Staph Plus Kit

3556353 5 x 50 tests

3556356 50 tests

Rabbit Plasma Kit

3556352 Pack for 20 reactions

**RPF (Rabbit Plasma Fibrinogen)/
Supplement**

3564618 10 vials

**Sulfamethazine Solution (0.2%)/
Supplement**

3562682 2.5 ml x 1 vial

Staphylococcus aureus* – NF standard*XP T90-412 (06/2006):**

Water quality
Detection and enumeration
of pathogenic *Staphylococci*
Membrane-filtration method

Water sample filtration



Membrane

or

Baird-Parker

or



Enumeration of white
colonies with yellow
halo/Gram+

Baird-Parker + RPF



Direct enumeration of black
or grey colonies surrounded
by a whitish opaque halo/Gram+

Chapman Mannitol (Water)



48 hrs
37°C

Transfer
the membrane

Enumeration of black
colonies with clear
halo/Gram+

Confirmation
Latex Pastorex™ Staph+



Confirmation
Brain Heart Infusion

48 hrs
37°C

Coagulation reading:
Rabbit Plasma

Confirmation
Baird-Parker + RPF

48 hrs
37°C

Enumeration of black
or grey colonies surrounded
by a whitish opaque halo/
Gram+

Micro-organisms generally detected and methods the most commonly used according to the origin of water sample

Main types of water	Network Tap	Industrial Process	Artificial Surface	Bottled	Superficial (Surface)	Bathing	Waste	Cooling Towers	Aerosols
Origins of water	Drinking water	Treated cooling towers, process, sanitary water	Spa, hydrotherapy, swimming pool, whirlpools	Natural mineral and source water	Lakes, rivers	Coastal sea, estuarine, inland water	Residual raw waters, sludge, soil, treatment plant effluents	Non treated cooling towers	Drops from cooling towers, tap water
Turbidity	+	+	+	+	+++	+++	+++	++++	++
Microbial load	+	+	+	+	++	++	+++	+++	+++
Typical methods	MF (EUR) P/A (US)	MF	MF	MF	MF/MPN	MF/MPN Impedance	MPN/PCR Impedance	MPN/PCR	PCR
Typical quality indicators	Total flora <i>E. coli</i> Coliforms Enterococci	Total flora <i>E. coli</i> Coliforms Enterococci	Total flora <i>E. coli</i> Coliforms Enterococci	Total flora <i>E. coli</i> Coliforms (<i>E. coli</i>)	Total flora <i>E. coli</i> Coliforms Enterococci	Total flora <i>E. coli</i> Coliforms Enterococci	Total flora <i>E. coli</i> Coliforms Enterococci	Total flora	Total flora
Typical pathogens	<i>Legionella</i> <i>P. aeruginosa</i> <i>Salmonella</i> SRA	<i>Legionella</i> <i>P. aeruginosa</i> <i>Salmonella</i> SRA	<i>Legionella</i> <i>P. aeruginosa</i> <i>Staph. aureus</i> <i>Salmonella</i> SRA	<i>Legionella</i> <i>P. aeruginosa</i>	<i>Salmonella</i> SRA	-	<i>Legionella</i> <i>Salmonella</i>	<i>Legionella</i>	<i>Legionella</i>

Legends:

SRA = Sulfite-Reducing Anaerobes

MF = Membrane Filtration

MPN = Most Probable Number

P/A = Presence/Absence

PCR = Polymerase Chain Reaction



Bio-Rad
Laboratories, Inc.

**Life Science
Group**

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