MICROBIOLOGICAL ANALYSIS OF DRINKING WATER

PROCEDURE IN ACCORDANCE WITH ISO STANDARDS

Edition No. 3

Index

Who are we?

European leaders in the manufacture of culture media.

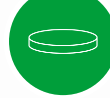
Founded in 1960, we are one of the leading manufacturers in Europe of dehydrated culture media for microbiology and molecular biology. As a privately owned company, we have succeeded in establishing a strong international market position.

From our plant in Madrid, Spain, we export to over 130 countries, either directly or through an extensive network of authorized distributors. Our success is based on reliable distribution channels, a committed professional team, and an extensive product portfolio.

What do we do?

Develop, manufacture and distribute high-quality culture media for microbiology and molecular biology.

The experience gained in the design and manufacture of culture media has made us specialists. We develop, produce and distribute culture media of the highest quality for microbiology and molecular biology with the design of more than 700 dehydrated media. Condalab is also known for providing key ingredients such as agar, peptones and agarose, among others. Our catalog also includes media for molecular biology.



Microbiology

Dehydrated culture media
Prepared culture media
Supplements
Microbial sensitivity tests
Colorants
Condagene®

Molecular biology

Dehydrated culture media
Agaroses
Dyes for molecular biology

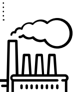
Bioingredients

Agaroses
Peptones
Carbohydrates

Who do we do it for?

Clinical and microbiological water control

Quality control in drinking water, recreational waters, etc.



Production processes

Fermentation processes, vaccines, probiotics and culture media manufacturers.

R&D

Laboratories, research centers and universities.

How do we do it?

We opt for quality.

We continue to improve and increase our production to achieve the highest quality standards. We have ISO 9001:2015, ISO 13485:2018 and the CE mark for Invitro medical devices.

Our formulations meet the international standards of European Pharmacopoeia, FDA, APHA, USP and AOAC. We follow strict controls throughout production before, during and after each manufacturing process, to ensure quality and consistency from batch to batch.

THE VALUE OF MICRO-BIOLOGICAL CONTROL IN DRINKING WATER

How important are reference methods in water quality?

FROM A HEALTH RISK PERSPECTIVE, WATERS ARE DEFINED AS:

It must not contain any type of microorganism, parasite, or substance that poses a health risk and must comply with the established parameters.

Water that does not meet the requirements to be deemed suitable or when the established limits are exceeded.

WATER FOR CONSUMPTION

Water for human use includes:

- Abstraction waters.
- Water for consumption in the food business sector.

EXCLUDED

- **Water packaged** for consumption.
- Medicinal mineral waters.
- Water in facilities governed by Royal Decree (RD) 487/2022.
- All those intended exclusively for uses that do not affect the health of those who use them.

At Condalab, we offer a full range of culture media that comply with ISO formulations, as well as various analytical methods to facilitate their implementation in drinking water quality control laboratories.

To ensure that drinking water is safe, chemical parameters, **microbiological parameters, including quality indicators,** and organoleptic characteristics must be analyzed.

Microbiological analysis involves **detecting and quantifying** pathogens or accompanying microorganisms.

These indicator microorganisms are found in abundance in the intestines of mammals, which is why their presence indicates fecal contamination and therefore that the water is not suitable for human consumption.

To these, **coliphages** have been added as viral indicators both for fecal contamination and for the verification of treatment and disinfection processes.

Thus, as specified in **RD 3/2023 (Directive (EU) 2020/2184),** waters intended for consumption must comply with:

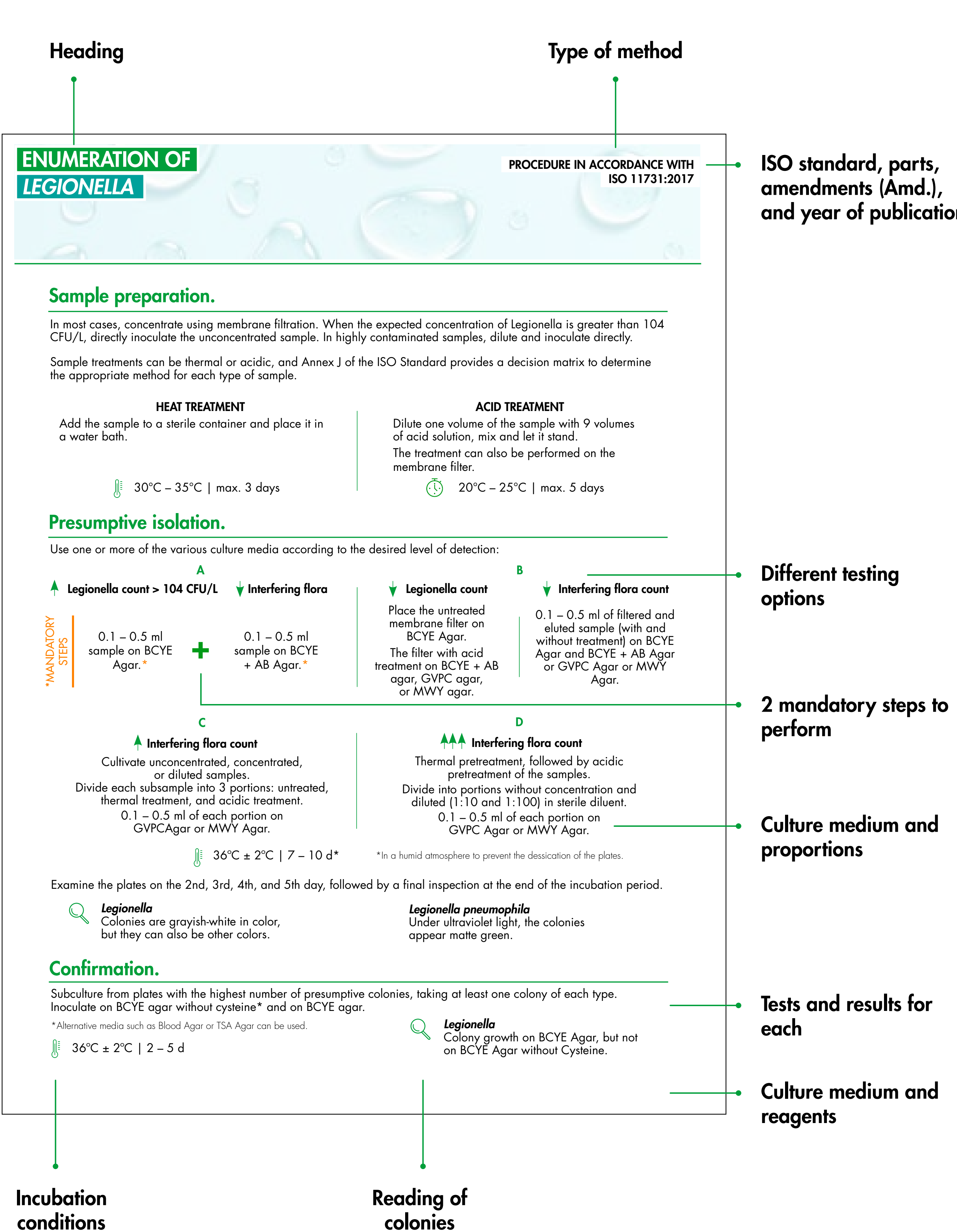
Microbiological parameters

- Absence of *Escherichia coli* in a 100 ml sample.
- Absence of intestinal enterococci in a 100 ml sample.
- Absence of *Clostridium perfringens* in a 100 ml sample.
- Does not exceed 100 CFU/L or 1 CFU/100 ml of *Legionella* spp, depending on the situation.

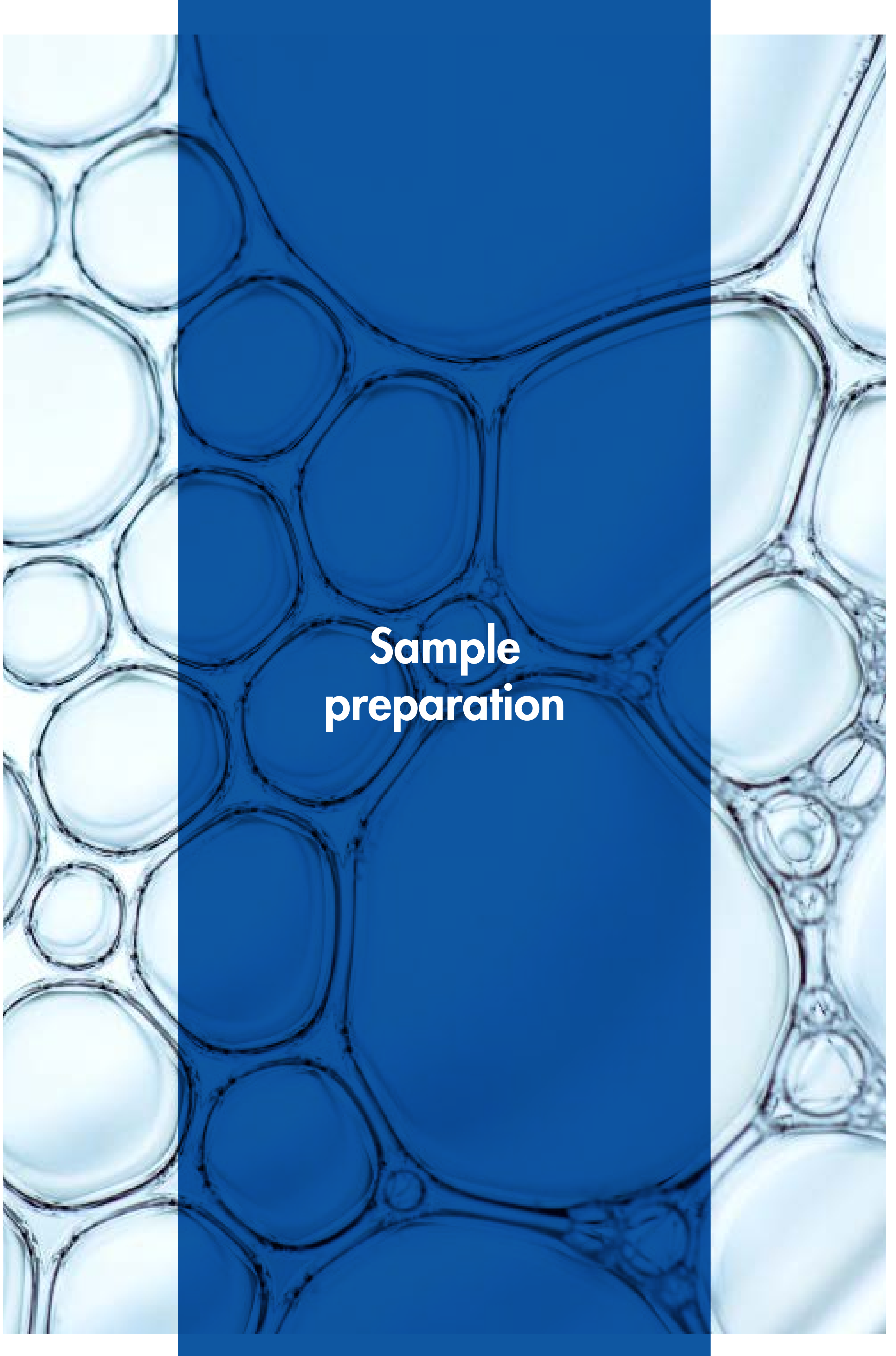
Quality indicator parameters

- Absence of coliforms in 100 ml of sample.
- Does not exceed 100 CFU/ml of culturable microorganisms.
- Absence of somatic coliphages in a 100 ml sample.

HOW TO READ A
WORKFLOW



Heading
Type of method
ENUMERATION OF
LEGIONELLA
PROCEDURE IN ACCORDANCE WITH
ISO 11731:2017
ISO standard, parts, amendments (Amd.), and year of publication
Sample preparation.
In most cases, concentrate using membrane filtration. When the expected concentration of Legionella is greater than 104 CFU/L, directly inoculate the unconcentrated sample. In highly contaminated samples, dilute and inoculate directly.
Sample treatments can be thermal or acidic, and Annex J of the ISO Standard provides a decision matrix to determine the appropriate method for each type of sample.
HEAT TREATMENT
Add the sample to a sterile container and place it in a water bath.
30°C – 35°C | max. 3 days
ACID TREATMENT
Dilute one volume of the sample with 9 volumes of acid solution, mix and let it stand.
The treatment can also be performed on the membrane filter.
20°C – 25°C | max. 5 days
Presumptive isolation.
Use one or more of the various culture media according to the desired level of detection:
A
Legionella count > 104 CFU/L
Interfering flora
*MANDATORY STEPS
0.1 – 0.5 ml sample on BCYE Agar.*
0.1 – 0.5 ml sample on BCYE + AB Agar.*
B
Legionella count
Place the untreated membrane filter on BCYE Agar.
The filter with acid treatment on BCYE + AB agar, GVPC agar, or MWY agar.
Interfering flora count
0.1 – 0.5 ml of filtered and eluted sample (with and without treatment) on BCYE Agar and BCYE + AB Agar or GVPC Agar or MWY Agar.
Different testing options
2 mandatory steps to perform
C
Interfering flora count
Cultivate unconcentrated, concentrated, or diluted samples.
Divide each subsample into 3 portions: untreated, thermal treatment, and acidic treatment.
0.1 – 0.5 ml of each portion on GVPCAgar or MWY Agar.
D
Interfering flora count
Thermal pretreatment, followed by acidic pretreatment of the samples.
Divide into portions without concentration and diluted (1:10 and 1:100) in sterile diluent.
0.1 – 0.5 ml of each portion on GVPC Agar or MWY Agar.
Culture medium and proportions
36°C ± 2°C | 7 – 10 d*
*In a humid atmosphere to prevent the dessication of the plates.
Examine the plates on the 2nd, 3rd, 4th, and 5th day, followed by a final inspection at the end of the incubation period.
Legionella
Colonies are grayish-white in color, but they can also be other colors.
Legionella pneumophila
Under ultraviolet light, the colonies appear matte green.
Confirmation.
Subculture from plates with the highest number of presumptive colonies, taking at least one colony of each type. Inoculate on BCYE agar without cysteine* and on BCYE agar.
*Alternative media such as Blood Agar or TSA Agar can be used.
36°C ± 2°C | 2 – 5 d
Legionella
Colony growth on BCYE Agar, but not on BCYE Agar without Cysteine.
Tests and results for each
Culture medium and reagents
Incubation conditions
Reading of colonies



Sample preparation

GENERAL REQUIREMENTS AND GUIDANCE FOR MICROBIOLOGICAL EXAMINATIONS BY CULTURE

PROCEDURE IN ACCORDANCE WITH ISO 8199:2018

Rules for consultation.

ISO 7704:2023 Requirements for the performance testing of membrane filters used for the direct enumeration of microorganisms by culture methods.

ISO 11133:2014 Preparation, production, storage, and performance testing of culture media.

ISO 19458:2006 Sampling for microbiological analysis.

Diluents and culture media.

The indicated diluents are the most commonly used; however, others may be used if recommended.

A) Sampling and sample handling.

Sample preparation - water and other aqueous matrices.

Before analysis, mix the samples by shaking to achieve a uniform distribution of microorganisms and other particles.

For plate counts, it is common to use 1:10 dilutions, and for membrane filtration, smaller dilutions are recommended.

If a high concentration of the target microorganism is expected, 1:100 dilutions can be used.

Sample transport.

On some occasions, swabs or sponges can be used to evaluate water quality, both for qualitative and quantitative methods.

B) Quantitative counting methods.

Solid culture media.

Inoculate a portion of the sample or the prepared dilutions so that once incubated, the microorganisms form colonies on or in the medium using one of the following techniques:

- Pour plate method.
- Surface plating technique.
- Membrane filtration method.

Liquid culture media.

Inoculate the portions to be analyzed in a liquid medium to obtain a qualitative result, either negative or positive growth.

An estimate of the quantity of microorganisms present can be determined using the Most Probable Number (MPN) technique.

C) Qualitative detection methods.

Detection methods to determine the presence or absence of a particular microorganism at a specified detection level.

Pathogen detection

Detection of pathogens

PROCEDURE IN ACCORDANCE WITH
ISO 11731:2017

Sample preparation.

In most cases, concentrate using membrane filtration. When the expected concentration of *Legionella* is greater than 10^4 CFU/L, directly inoculate the unconcentrated sample. In highly contaminated samples, dilute and inoculate directly.

Sample treatments can be thermal or acidic, and Annex J of the ISO Standard provides a decision matrix to determine the appropriate method for each type of sample.

HEAT TREATMENT

Add the sample to a sterile container and place it in a water bath.

30°C – 35°C | max. 3 days

ACID TREATMENT

Dilute one volume of the sample with 9 volumes of acid solution, mix and let it stand.

The treatment can also be performed on the membrane filter.

20°C – 25°C | max. 5 days

Presumptive isolation.

Use one or more of the various culture media according to the desired level of detection:

A

↑ **Legionella *count* > 104 CFU/L**

0.1 – 0.5 ml sample on BCYE Agar.

↓ **Interfering flora**

0.1 – 0.5 ml sample on BCYE + AB Agar.

B

↓ **Legionella *count***

Place the untreated membrane filter on BCYE Agar.

The filter with acid treatment on BCYE + AB agar, GVPC agar, or MWY agar.

↓ **Interfering flora count**

0.1 – 0.5 ml of filtered and eluted sample (with and without treatment) on BCYE Agar and BCYE + AB Agar or GVPC Agar or MWY Agar.

C.

↑ **Interfering flora count**

Cultivate unconcentrated, concentrated, or diluted samples.

Divide each subsample into 3 portions: untreated, thermal treatment, and acidic treatment.

0.1 – 0.5 ml of each portion on GVPC Agar or MWY Agar.

D

↑↑↑ **Interfering flora count**

Thermal pretreatment, followed by acidic pretreatment of the samples.

Divide into portions without concentration and diluted (1:10 and 1:100) in sterile diluent.

0.1 – 0.5 ml of each portion on GVPC Agar or MWY Agar.

36°C ± 2°C | 7 – 10 d*

*In a humid atmosphere to prevent the dessication of the plates.

Examine the plates on the 2nd, 3rd, 4th, and 5th day, followed by a final inspection at the end of the incubation period.

Legionella
Colonies are grayish-white in color, but they can also be other colors.

Legionella pneumophila
Under ultraviolet light, the colonies appear matte green.

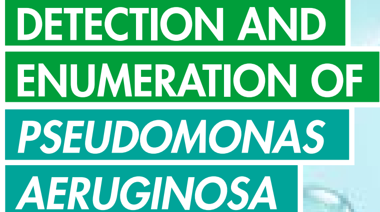
Confirmation.

Subculture from plates with the highest number of presumptive colonies, taking at least one colony of each type. Inoculate on BCYE agar without cysteine* and on BCYE agar.

*Alternative media such as Blood Agar or TSA Agar can be used.

36°C ± 2°C | 2 – 5 d

Legionella
Colony growth on BCYE Agar, but not on BCYE Agar without Cysteine.



METHOD BY
MEMBRANE FILTRATION
**PROCEDURE ACCORDING TO
ISO 16266:2006**

A) Sample preparation.

Refer to Standard ISO 8199 for sample preparation, filtration, and inoculation, and prepare dilutions according to Standard ISO 6887-1.

Filtration.

Filter the sample volumes or portions of their dilution using a 0.45 μm pore membrane filter.

Presumptive isolation.

Place the membrane on CN agar, avoiding any trapped air bubbles.

36°C ± 2°C | 44 ± 4 h

Examine the membrane filters after 22 ± 2 h and 44 ± 4 h.

Count all blue-green colonies (pyocyanin) as *confirmed* confirmed Pseudomonas aeruginosa.

Examine the membrane under UV light and count all non-pyocyanin-producing fluorescent colonies as presumptive *Pseudomonas aeruginosa*, for subsequent confirmation.

Count reddish-brown non-fluorescent colonies as presumptive *Pseudomonas aeruginosa* for subsequent confirmation.

Pseudomonas aeruginosa
Bluish-green colonies.

Presumptive *Pseudomonas aeruginosa*
Non-pyocyanin-producing fluorescent colonies.
Non-fluorescent reddish-brown colonies.

Isolation of suspected colonies.

For confirmation, subculture all colonies or as many as possible on Nutrient Agar.

36°C ± 2°C | 22 ± 2 h

Confirmation.

Non-pyocyanin-producing fluorescent colonies

Ammonia production from acetamide: **positive.**

Non-pyocyanin-producing fluorescent colonies

Oxidase: **positive.**

Ammonia production from acetamide: **positive.**

Fluorescence in King B Medium: **positive.**
Directly subculture reddish-brown colonies in King B Medium and examine daily under UV light.

Quality indicators

Quality indicators

22

METHOD USING
MEMBRANE FILTRATION
PROCEDURE IN ACCORDANCE WITH
ISO 14189:2013

A) Sample preparation.

The storage, including the transport of the sample, must not exceed 18 hours for vegetative bacteria and 72 hours for spores.

Heat treatment (spores only)

Heat a volume greater than the volume to be analyzed in a water bath.

36°C ± 2°C | 22 ± 2 h

Filtration.

Select a test volume of the sample or dilution – after the thermal treatment – that will yield between 10 and 80 colonies on a membrane with a diameter of 47–50 mm.

Filter 100 ml or the appropriate volume according to the sample using a 0.45 μm pore membrane filter.

Presumptive isolation.

Place the membrane on TSC Agar, ensuring no air bubbles are trapped*.

44°C ± 1°C | 21 ± 3 h under anaerobic conditions

*A thin layer of melted TSC Agar can be used to cover the filter.

Examine the membrane filters and count all presumptive bacterial colonies.

Presumptive *Clostridium perfringens*
Black or gray to yellowish-brown colonies.

Isolation of suspected colonies.

For confirmation, subculture at least 10 colonies on Blood Agar, Columbia Agar, or TSA Agar.

36°C ± 2°C | 21 ± 3 h under anaerobic conditions

Confirmation.

Acid Phosphatase Method.
Spread the colonies on filter paper and apply 2 to 3 drops of the acid phosphatase reagent.

Presumptive *Clostridium perfringens*
Black or gray to yellowish-brown colonies.

Phosphatase acide: **positive.**

A) Sample preparation.

See ISO 8199 Standard for sample preparation, filtration, inoculating, and dilutions.

Filtration.

Filter the appropriate volume according to the water to be analyzed using a membrane filter with a pore size of 0.45 μm.

Presumptive isolation.

Place the membrane on Slanetz-Bartley Medium, ensuring no air bubbles are trapped.

44°C ± 1°C | 21 ± 3 h under anaerobic conditions

Intestinal enterococci
Red, brown, or pink colonies, either at the center or throughout the colony.

Confirmation.

Transfer the membrane with the typical colonies, without inverting them, to preheated Bile Esculin Azide Agar at 44°C.

44°C ± 0.5°C | 2 h

Consider all typical colonies as positive if they exhibit a color ranging from brown to black, and count them as intestinal enterococci.

A) Sample preparation.

See ISO Standard 8199 for sample preparation, filtration, and inoculation.

Filtration.

Filter 100 ml (or volumes up to 250 ml) using a 0.45 μm pore membrane filter.

The minimum volume is 10 ml per sample, or its dilutions.

Presumptive isolation.

Place the membrane on CCA agar, avoiding any trapped air bubbles.

36°C ± 2°C | 21 – 24 h

Examine the membrane filters and count all the bacteria that show a positive reaction to β-D-galactosidase (presumptive coliforms other than *E. coli*) and/or to β-D-glucuronidase (*E. coli*).

Escherichia coli
Dark blue to violet colonies.

Coliforms other than *E. coli*
Colonies ranging from pink to red.

Isolation of suspected colonies.

Place the membrane on CCA agar, avoiding any trapped air bubbles.

36°C ± 2°C | 21 ± 3 h

Select all, or at least 10 colonies from pink to red.

Confirmation.

Non *E. coli* coliforms.

Oxidase: **negative.**

Sample preparation.

Refer to ISO Standards 8199, 5667-3, and 6887 for sample preparation, dilutions, and culture media inoculation.

Isolation.

In a Petri dish, in a sample volume (or its dilution) of less than 2 ml, add 15 to 20 ml of melted YEA agar, mix carefully, and allow it to solidify.

Inoculate at least one plate for each temperature.

SERIES A		SERIES B
36°C ± 2°C | 44 ± 4 h	+	22°C ± 2°C | 68 ± 4 h

Examine the plates immediately after incubation and, if it is not possible to conduct the examination immediately, store the plates at 5°C ± 3°C and examine within the next 48 hours.

Reading of results.

Count the colonies observed on each plate for each incubation temperature, following the procedure according to ISO 8199 and calculate the estimated number of CFU/ml of the sample.

A) Preparation of the test materials.

Preparation of the mother cultures.

Rehydrate the reference culture of the host cells of the strain in 3 ml of Modified Scholten Broth and transfer to a flask with 50 ± 5 ml of Modified Scholten Broth.

36°C ± 2°C | 20 ± 4 h with agitation

Then add 10 ml of sterile glycerin and mix, and distribute into 0.5 ml aliquots and store at -70°C ± 10°C or in liquid nitrogen.

Preparation of test cultures.

Equilibrate a master culture vial to room temperature (15°C - 30°C) and inoculate in MacConkey Agar or a lactose-containing medium.

36°C ± 2°C | 20 ± 4 h

Inoculate 3-5 lactose-positive colonies into a flask with 50 ± 5 ml of Modified Scholten Broth preheated to room temperature or up to 37°C.

36°C ± 2°C | 5 ± 1 h with agitation

Then add 10 ml of sterile glycerin and mix, and distribute into 1.2 ml aliquots and store at -70°C ± 10°C for a maximum of 2 years.

Absorbance calibration for viable count.

Equilibrate a test culture vial to room temperature (15°C - 30°C).

In a nephelometric conical flask, add 50 ± 5 ml of Modified Scholten Broth preheated to room temperature or up to 37°C and adjust the spectrometer reading to 0 at the side arm of the flask.
Add 50 ± 5 ml of Modified Scholten Broth to another flask and aseptically transfer a portion to a cuvette, then adjust the spectrometer reading to 0 using it.

Inoculate the Modified Scholten Broth with 0.5 ml of the test culture.

36°C ± 2°C | 20 ± 4 h

*Measure absorbance every 30 minutes and extract 1 ml for the viable bacteria count.

Dilute the samples to 10-7 and count the CFU in 1 ml of the $10^{5,}$ 10^6, and 10^7 dilutions, in duplicate, on Nutrient Agar or Modified Scholten Agar.

It is possible to perform membrane filtration with volumes of 1 ml of the same dilutions and count the CFUs, in duplicate, on Nutrient Agar or Modified Scholten Agar.

36°C ± 2°C | 20 ± 4 h

Count the total number of colonies on each plate that has between 30 and 300 colonies and calculate the concentration of CFU/mL.

B) Preparation of the inoculum cultures.

Equilibrate a test culture vial to room temperature (15°C - 30°C).

In a flask, add 50 ± 5 ml of preheated Modified Scholten Broth to room temperature or up to 37°C and adjust the spectrometer reading to 0 as indicated in the calibration.

Inoculate the Modified Scholten Broth with 0.5 ml of the test culture.

36°C ± 2°C with agitation*

*Measure the absorbance every 30 minutes.

At an absorbance corresponding to a cell density of approximately 108 CFU/ml, remove from the incubator and cool for use on the same day.

Alternative procedures.

Inoculate 50 ± 5 ml of preheated Modified Scholten Broth with 0.5 ml of the thawed test culture.

36°C ± 2°C | 3 ± 1 h with agitation

Inoculate typical colonies in 50 ± 5 ml of preheated Modified Scholten Broth.

36°C ± 2°C | 3 ± 1 h with agitation

Remove from the incubator and cool.

Regardless of the preparation, ideally the inoculum culture should have a count of approximately 108 CFU/ml.

C) Isolation.

Add 300 µl of calcium chloride solution preheated to room temperature to 50 ml of Modified Scholten Semisolid Agar in a water bath at 45°C ± 1°C, and distribute in 2.5 ml aliquots into capped tubes in a water bath at 45°C ± 1°C.

Add 1 ml of the inoculum culture to each tube, mix, and pour onto a 90 mm plate with Modified Scholten Agar preheated to room temperature.

36°C ± 2°C with agitation*

Interfering flora count

MODIFICATIONS

Add nalidixic acid to the Modified Scholten Semisolid Agar up to a concentration of 250 µg/ml.

Use CN E. coli as the inoculum culture.

Phage count

MODIFICATIONS

10 ml of Modified Scholten Semisolid Agar, 10 µl of calcium chloride solution, 1 ml of host strain culture, and 5 ml of sample, in duplicate.

Pour 50 ml of Modified Scholten Agar onto a 140-150 mm plate or two 90 mm plates with 20 ml each.

Presence/absence test.

Equilibrate a test culture vial to room temperature (15°C - 30°C).

In a flask, add 25 ± 2.5 ml of Modified Scholten Broth preheated to room temperature or up to 37°C, add 150 µl of calcium chloride solution preheated to room temperature and 0.25 ml of the test culture, and incubate at 36°C ± 2°C for 3 hours with agitation.

Add 1 ml of the sample or dilution preheated to room temperature to 1 ml of the assay culture.

36°C ± 2°C | 18 ± 2 h

Add 0.4 ml of chloroform to 1 ml of the culture, mix, and centrifuge at 3000 g for 5 min.

Add 300 µl of calcium chloride solution preheated to room temperature to 50 ml of Modified Scholten Semisolid Agar in a water bath at 45°C ± 1°C, and distribute in 2.5 ml aliquots into capped tubes in a water bath at 45°C ± 1°C.

Add 1 ml of the inoculum culture to each tube, mix, and pour onto a 90 mm plate with Modified Scholten Agar preheated to room temperature and incubate at 36°C ± 2°C for 30 min.

Add a drop of the chloroform-treated culture onto the inoculated plate.

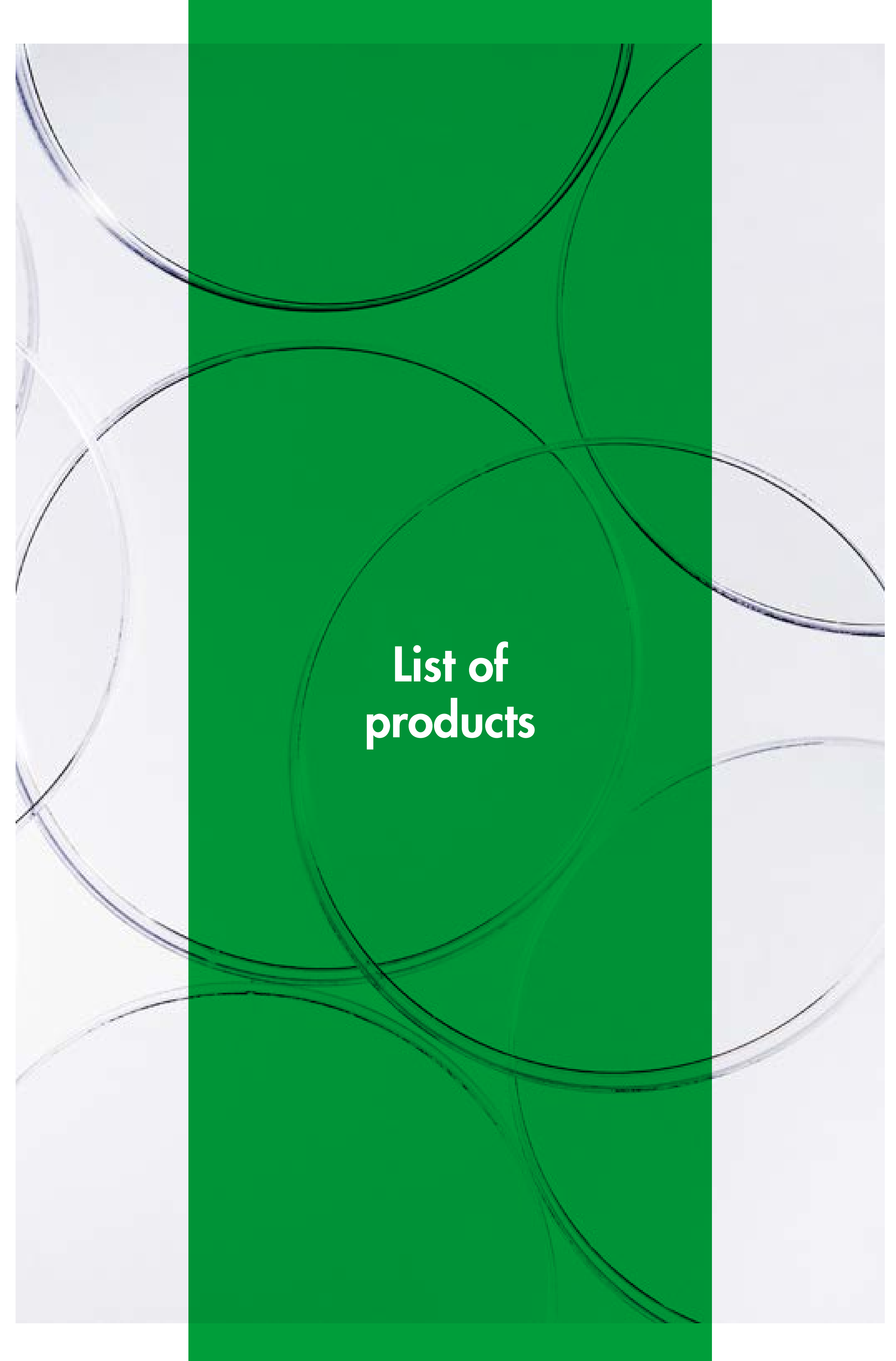
36°C ± 2°C | 18 ± 2 h

D) Reading of results.

Count the colonies on each plate using oblique illumination after incubation, but before 4 hours have elapsed.

Presence/absence test.

Examine each plate in the area where the drop has been deposited to see if there is a clear zone, indicative of the presence of somatic coliphages in the sample.



List of products

CAT	PRODUCT	FORMAT
1405	Saline Peptone Water (MRD)	500 g
4044	Saline Peptone Water (MRD)	20 tubes
5182	Saline Peptone Water (MRD)	10 x 90 ml
5093	Maximum Recovery Diluent (MRD)	10 x 250 ml
6711	Maximum Recovery Diluent (MRD)	2:x5L
6710	Maximum Recovery Diluent (MRD)	3 x x3L
4101	Ringer Solution 1/4	20 tubes

CAT	PRODUCT	FORMAT
1311	Legionella BCYE Agar Base	500 g
944	Legionella BCYE Agar	20 plates
4737	Legionella BCYE Agar	30 plates
828	Legionella BCYE + AB Agar	20 plates
978	Legionella BCYE Agar without Cysteine	20 plates
985	Legionella GVPC Agar	20 plates
800	Legionella GVPC Agar	120 plates
4730	Legionella GVPC Agar	30 plates
1068	Soy and Tripticasein Agar (TSA)	500 g
904	Soy and Tripticasein Agar (TSA)	20 plates
1108	Blood Agar Base	500 g
6140	Legionella Latex Test	50 tests
6022	Supplement for Legionella BCYE	10 vials
6025	Supplement for Legionella GVPC	10 vials
6067	Supplement for Legionella MWY	10 vials

CAT	PRODUCT	FORMAT
1156	Nutritive Agar	500 g
934	Nutritive Agar	20 plates
1153	Pseudomonas CN Agar Base	500 g
4740	Pseudomonas Agar CN	30 plates
1155	Acetamide Broth Base	500 g
2017	Acetamide Broth	500 g
1532	King B Medium (Agar for Pseudomonas F)	500 g
6007	Oxidase Reagent	2 x 25 swabs

CAT	PRODUCT	FORMAT
1104	Columbia Agar Base	500 g
931	Columbia Agar + 5% Lamb Blood	20 plates
1328	Blood Agar Base No. 2	500 g
912	Blood Agar No. 2	20 plates
1068	Soy and Tripticasein Agar (TSA)	500 g
904	Soy and Tripticasein Agar (TSA)	20 plates
4003	Soy and Tripticasein Agar (TSA)	20 tubes
5000	Soy and Tripticasein Agar (TSA)	10 x 100 ml
5157	Soy and Tripticasein Agar (TSA)	10 x 200 ml
1029	TSC Agar (tryptose sulfite cycloserine) base	500 g
4728	TSC Agar (tryptose sulfite cycloserine)	30 plates
4660	TSC Agar (tryptose sulfite cycloserine) base	10 x 100 ml
4661	TSC Agar (tryptose sulfite cycloserine) base	10 x 200 ml
6020	Supplement for Clostridium perfringens (TSC)	10 vials

CAT	PRODUCT	FORMAT
1005	Bile Esculin Azide Agar	500 g
952	Bile Esculin Azide Agar	20 plates
4701	Bile Esculin Azide Agar	30 plates
1109	Slanetz-Bartley Medium	500 g
946	Slanetz-Bartley Medium	20 plates
4710	Slanetz-Bartley Medium	30 plates

CAT	PRODUCT	FORMAT
2080	E. coli Coliforms Chromogenic Agar (CCA)	500 g
981	E. coli Coliforms Chromogenic Agar (CCA)	20 plates
4721	E. coli Coliforms Chromogenic Agar (CCA)	30 plates
1068	Soy and Tripticasein Agar (TSA)	500 g
904	Soy and Tripticasein Agar (TSA)	20 plates
6007	Oxidase Reagent	2 x 25 swabs

CAT	PRODUCT	FORMAT
1049	Yeast Extract Agar (YEA)	500 g
941	Yeast Extract Agar (YEA)	20 plates
4703	Yeast Extract Agar (YEA)	30 plates
4022	Yeast Extract Agar (YEA)	20 tubes
4671	Yeast Extract Agar (YEA)	10 x 100 ml
4672	Yeast Extract Agar (YEA)	10 x 200 ml

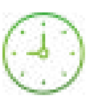
CAT	PRODUCT	FORMAT
1098	MacConkey Agar without Crystal Violet and without Sodium Chloride	500 g
5247	Modified Scholten Agar	10 x 200 ml
5248	Modified Scholten Semisolid Agar	10 x 100 ml
5249	Modified Scholten Broth	10 x 25 ml
1405	Saline Peptone Water (MRD)	500 g
4044	Saline Peptone Water (MRD)	20 tubes
5182	Saline Peptone Water (MRD)	10 x 90 ml
5093	Maximum Recovery Diluent (MRD)	10 x 250 ml
6711	Maximum Recovery Diluent (MRD)	2:x5L
6710	Maximum Recovery Diluent (MRD)	3 x x3L

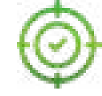
Appendices

Alternative rapid methods

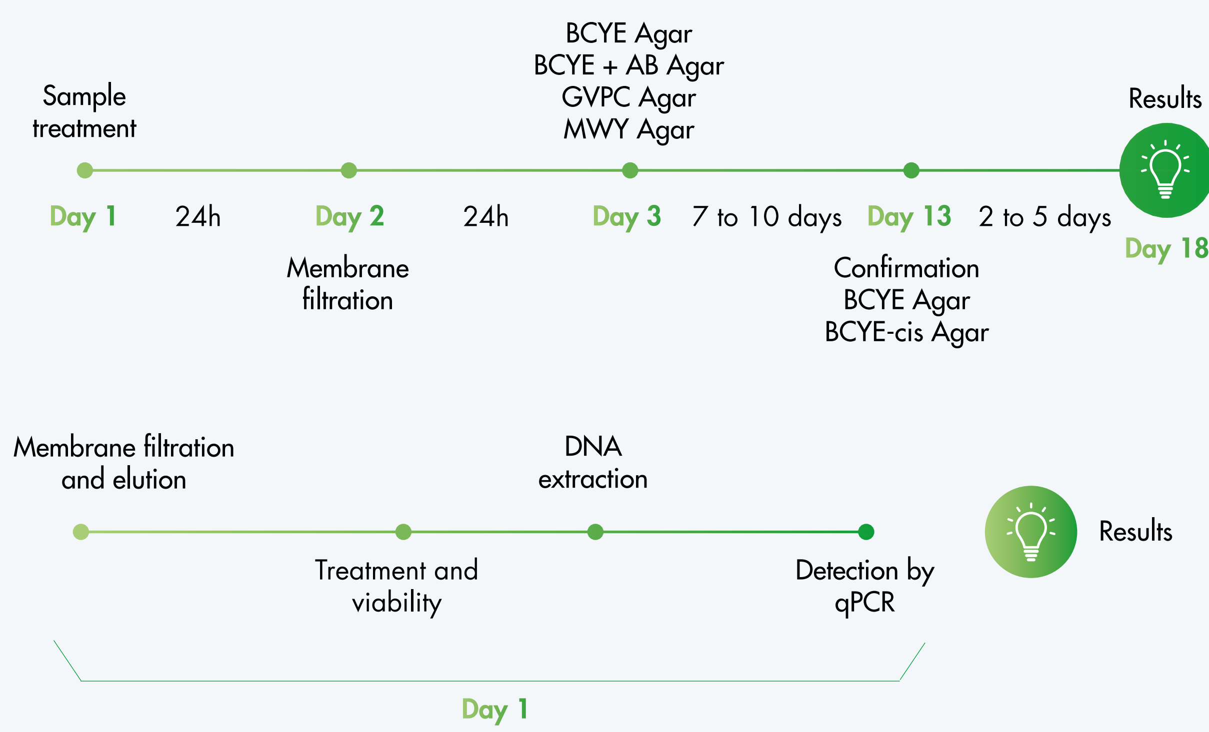
Perform your analyses faster and easier using Condagene®

Until now, traditional culture methods have been our best ally when considering reliability in our microbiological analyses. But thanks to Condagene® you can perform your analyses **more quickly and easily**, providing an ideal complement to your usual techniques.


Time


Specificity

Sensitivity



Why choose PCR for pathogen detection?

- Time until results are available
- Method complexity
- High number of reagents, culture media, and handling
- Probability of human error

Learn more about CondaChrome®

CondaChrome® media contain in their composition a colorless **chromogenic substrate**, which, thanks to the specific **enzymatic activities** of each microorganism, is degraded, releasing an element known as a chromophore, providing the colony with an intense, specific color that enables the **identification** of the bacteria **with the naked eye.**

Quick results

Savings in time and space

Easy interpretation

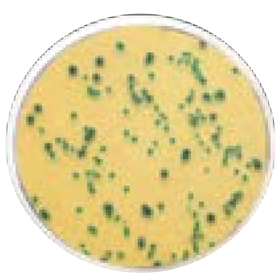
CondaChrome® E. coli - Coliform Medium

- For the detection of *E. coli* and other coliforms
- Membrane filtration method

Reading of colonies

- Blue-violet: *Escherichia coli*
- Salmon: *Citrobacter freundii*, coliforms other than *E. coli*
- Colorless: *Salmonella enteritidis*

CondaChrome® m-EI Agar Base



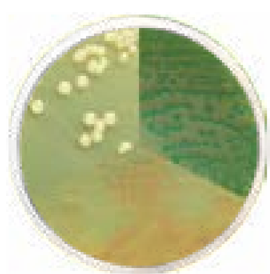
- For the detection and count of Enterococcus
- Membrane filtration method

Reading of colonies

- Blue: *Enterococcus faecalis, Enterococcus faecium*
- Total inhibition: *Escherichia coli*

Also available is CondaChrome® m-EI Agar, modified to differentiate between *E. faecalis* and *E. faecium*

CondaChrome® Agar Vibrio



- For isolation and detection of *Vibrio* spp.
- Secondary selective culture medium
- **ISO 21872**

Reading of colonies

- Pink: *V. cholerae, V. vulnificus*
- Bluish green: *V. parahemolyticus*
- Colorless: *V. alginolyticus*

Extraction kits

CAT	PRODUCT	FORMAT
6500	Condagene® Complex Extraction	100 rxn
6502	Condagene® ViableCell Reagent	100 rxn
6504	Condagene® Rapid Extraction	100 rxn
6505	Condagene® Rapid Extraction	250 rxn
6506	Condagene® Extraction Column	50 rxn
6507	Condagene® Extraction Column	250 rxn

Pathogens

CAT	PRODUCT	FORMAT
6525	Condagene® Legionella spp.	100 rxn
6526	Condagene® Legionella pneumophila	100 rxn
6527	Condagene® Legionella spp. and L. pneumophila	100 rxn

Equipment

CAT	PRODUCT
CDL96	Thermocycler CDL-96
6503	Condagene® B-Light

CondaChrome®

CAT	PRODUCT	FORMAT
1122	CondaChrome® Agar Salmonella	500 g
1180	CondaChrome® EC Fluorogenic Agar with MUG	500 g
1285	CondaChrome® Fluorogenic EC Broth with MUG	500 g
1340	CondaChrome® E. coli - Coliform Medium	500 g
1412	CondaChrome® m-EI Agar Base	500 g
1465	CondaChrome® Lauryl Sulfate Broth	500 g
1585	CondaChrome® Standard Methods Agar (PCA)	500 g
2050	CondaChrome® Modified m-EI Agar Base	500 g
2054	CondaChrome® Agar Vibrio	500 g

ADDITIONAL RESOURCES

+

Product list

Condagene®

CondaChrome®

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MICROBIOLOGICAL ANALYSIS OF DRINKING WATER

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