Condalab

Inspired by knowledge

MICROBIOLOGICAL ANALYSIS IN THE FOOD INDUSTRY

PROCEDURE IN ACCORDANCE WITH ISO STANDARDS

Edition No. 3

Index

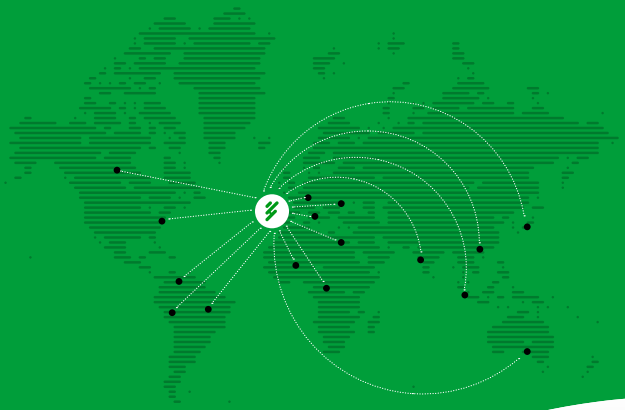
Who are we?

European leaders in the manufacture of culture media.

Founded in 1960, we are one of the leading manufacturers of dehydrated culture media for microbiology and molecular biology in Europe and have positioned ourselves as a leading private company in the international market.

From our factory located in Madrid, Spain we export to more than 130 countries worldwide directly or through an extensive network of authorized distributors.

The key to success is our distribution channel, together with a professional team and the wide range of products we offer.



Experts.
Mastery of culture media.

Flexible and reliable.
Tailored to the needs of our customers.

Innovative.
Inspiring the future.

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?

We have an extensive network of clients as a result of active listening and the search for optimal solutions.

Condalab products target the following market niches:

Quality control.
Food and beverage industry, breweries, pharmaceutical industry and cosmetics industry.

Clinical analysis.
Hospitals, veterinary clinics, clinical and food control laboratories.

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 ROLE OF STANDARD METHODS

How important are standard methods in food safety?

Foods that are not microbiologically tested can become a health risk.

MICROORGANISMS RESPONSIBLE FOR MOST CASES AND NOTIFICATIONS IN THE EU

*Campylobacter** *Salmonella* *Yersinia* STEC *Listeria*

**Most commonly reported since 2005*

MAIN MICROORGANISMS ASSOCIATED WITH HIGH RATES OF DEATH OR SERIOUS DISEASES

Salmonella STEC *Listeria*

Foods that are not microbiologically tested can become a health risk because of the possible diseases they can cause. Diarrhoeal diseases, for example, are the leading cause of death in children and the second in adults, and in many cases are related to the ingestion of contaminated food.

Microbiological criteria must therefore be established to ensure food safety and protect consumer health. This implies, among other things, setting out the **analytical method** to use to ensure compliance with these criteria.

In addition, the use of **internationally recognized standardized methods** for microbiological analysis contributes to the generation of comparable results and increases confidence in the results obtained, which ensures the quality and safety of the food being tested.

That is why more and more protocols developed in the **ISO and CEN Committees** are indicated as **standard methods** both by accreditation bodies and to establish microbiological criteria(EU Regulations 2073/2005 and 1441/2007).

Currently, the strategy for the development and revision of **ISO methods** includes the simplification and incorporation of new technologies for optimization and better application in food control laboratories.

From Condalab we place at your disposal the whole range of culture media under **ISO formulations**, as well as the various **methods of analysis** to facilitate implementation in the various food quality control laboratories.

HOW TO READ A

WORKFLOW

Heading

Type of method

DETECTION AND COUNT OF *LISTERIA MONOCYTOGENES* AND *LISTERIA* SPP.

PART 1: DETECTION METHOD
PROCEDURE IN ACCORDANCE WITH ISO 11290-1:2017

ISO standard, parts, amendments (Amd.) and year of publication

Enrichment.

(A) Primary culture

25 g/ml sample + 225 ml Listeria 1/2 Fraser Broth

30°C | 25 h ± 1 h

(B) Second enrichment

0.1ml of primary culture + 10 ml Listeria Fraser Broth

37°C | 24 h ± 2 h

Culture medium and proportions

Incubation conditions

Presumed isolation.

0.1 ml of A and B separately in ALOA Agar

37°C | 24 - 48 h ± 2 h

Listeria spp.
Blue-green colonies

L. monocytogenes
Blue-green colonies and presence of opaque halo

0.1 ml of A and B separately in Oxford Algar or Palcam Agar

35°C ± 2°C| 24 - 48 h ± 2 h

Consult TDS for the medium used for the identification of suspicious colonies

2 mandatory steps to perform

Colonies reading

Isolation suspect colonies.

Once suspected colonies have been identified, seed maximum 5 colonies/plate in a non-selective agar: Nutritive Agar, Blood N°2 Agaror TSYE Agar

37°C | 24 - 48 h ± 2 h

Confirmation.

***Listeria* spp.**

Microscopy
Short bacilli or cocobacilli

Catalase activity
Positive

Listeria monocytogenes

Microscopy
Short bacilli or cocobacilli

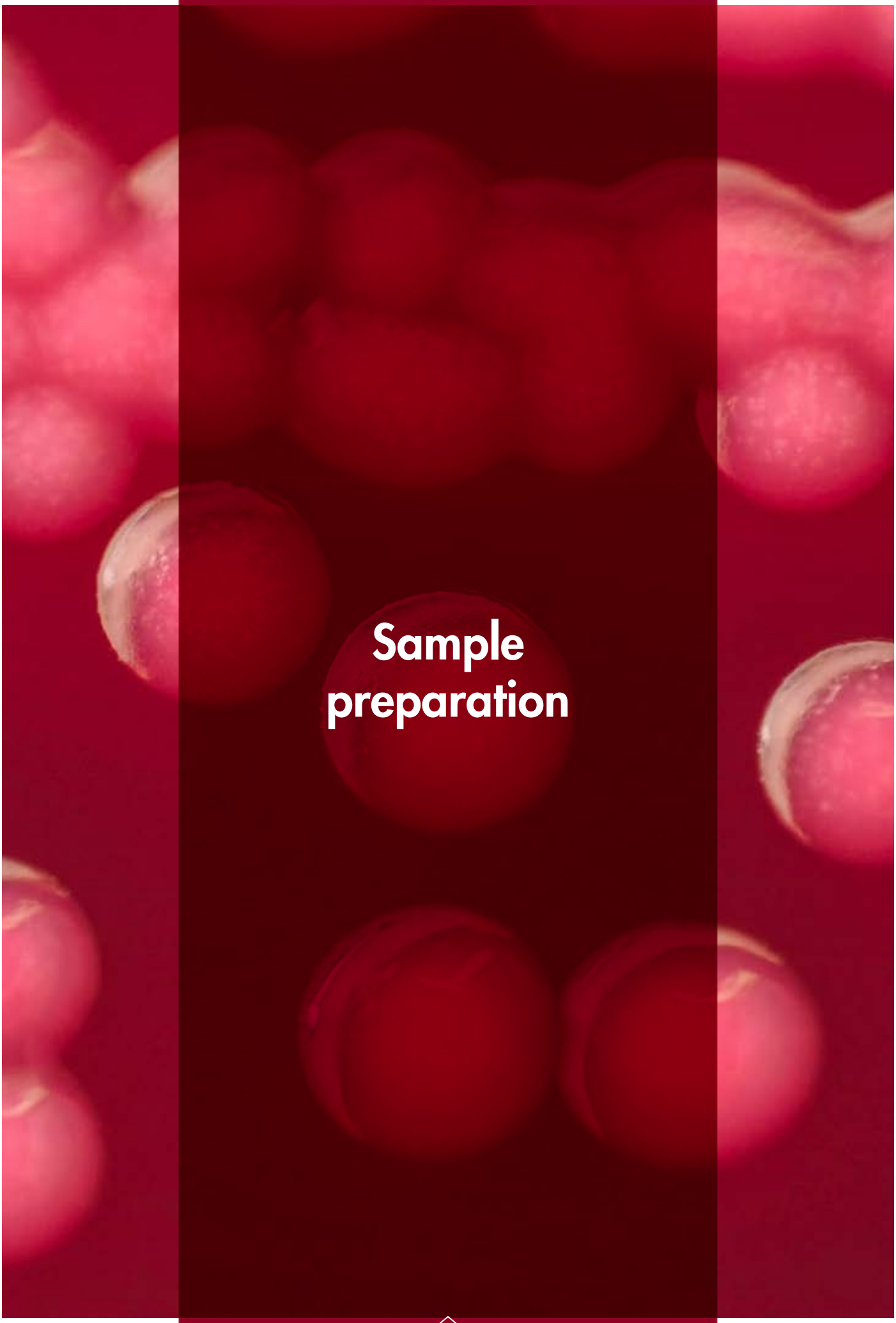
Hemolytic activity
Positive

Fermentation of carbohydrates
• Rhamnose: **Positive** • Xylose: **Negative**

Tests and results for each

LIST OF PRODUCTS

Culture medium and reagents



Sample preparation

PREPARATION OF INITIAL SUSPENSION AND DECIMAL DILUTIONS FOR MICROBIOLOGICAL EXAMINATION

PART 1: GENERAL RULES FOR THE PREPARATION OF THE INITIAL SUSPENSION AND DECIMAL DILUTIONS
PROCEDURE IN ACCORDANCE WITH ISO 6887-1:2017

Rules for consultation.

ISO 6887-2:2017 Preparation of meat and meat products.
ISO 6887-3:2017 Preparation of fish and fishery products.
ISO 6887-4:2017 Preparation of miscellaneous products.
ISO 6887-5:2021 Preparation of milk and milk products.
ISO 6887-6:2013 Preparation of samples taken in the primary production stage.

Initial dilution.

≥10 g/ml sample + (9*g/ml of the sample) ml of diluent.

≤ 27°C | ≤ 45 min

Additional dilutions.

1 ml of initial dilution + 9 ml diluent.

≤ 27°C | 5 s

Repeat this step with the new dilution 10^{-2} the times necessary (n) to obtain the desired number of dilutions $10^{-n.}$

Alternative dilutions.

Required in special cases, for example 1:2 or 1:5 are prepared identically respecting the ratio between the initial suspension and the diluent.

Pathogen detection

Pathogen detection

Initial dilution.

See ISO 6887-1 and any international standards appropriate for the product concerned.

Presumed isolation.

0.1 ml of sample or initial dilution in MYP Agar.

30°C | 18 h - 24 h*

*Possibility of incubating additional 24 hours.

Count for all colonies suspected of being *Bacillus cereus*.

Bacillus cereus
Pink colonies, generally surrounded by a precipitation zone.

Isolation of suspected colonies.

Once suspected colonies are identified, streak at least 5 colonies in Blood N°2 Agar.

30°C | 24 h ± 2 h

Confirmation.

Select well-isolated colonies from the selective medium plates and perform the following test:

Hemolytic activity: **Positive**

Enrichment.

A

↓ N° *Campylobacter* spp.
↓ n° flora accompanying

10 ml/g in 90 ml of Bolton Broth.

37°C | 4 h - 6 h
+
41,5°C | 44 ± 4 h

B

↓ *Campylobacter* spp.
↑ n° flora accompanying

10 ml/g in 90 ml of Preston Broth.

41,5°C | 24 ± 2 h

C.

↑ N° *Campylobacter* spp.

Streak directly into the CCDA Agar.

Presumed isolation.

CCDA Agar

***Campylobacter* spp.**
Typical gray colonies, often with metallic shine, flat and wet, with a tendency to spread.

Secondary*: E.g. Preston Agar

*Optional in cases **A) and C)**

41,5°C | 44 ± 2 h

Isolation of suspected colonies.

Non-selective blood agar (eg: Columbia Agar).

41,5°C | 24 h - 48 h

NOTE: Cultivate in all cases in microaerobic atmosphere.

Confirmation.

Morphology and mobility: **Small mobile curved bacilli**
Microaerobic growth at 25°C: **Negative**
Aerobic growth at 41,5°C: **Negative**
Oxidase: Positive

Initial dilution.

Prepare the samples and dilutions, from the sample if liquid or from the initial suspension in other products, in accordance with ISO 6887.

Presumed isolation.

0.1ml in CCDA Agar.

41,5°C | 44 ± 2 h

*Possibility of incubating for additional 24 hours

***Campylobacter* spp.**
Typical gray colonies, often with metallic shine, flat and wet, with a tendency to spread.

Isolation of suspected colonies.

Once identified, select plates with < 150 suspected colonies and take 5 colonies for subculture and confirmation.

Non-selective blood agar (e.g.: Columbia Agar).

41,5°C | 24h - 48 h

NOTE: Cultivate in all cases in microaerobic atmosphere.

Confirmation.

Morphology and mobility: **Small mobile curved bacilli**
Microaerobic growth at 25°C: **Negative**
Oxidase: **Positive**

DETECTION OF *CRONOBACTER* SPP.

PROCEDURE IN ACCORDANCE WITH ISO 22964:2017

Enrichment.

See the ISO 6887 series of standards and any international standards appropriate for the product concerned.

(A) Primary culture

10 g/ml sample +
90 ml Buffered Peptone Water

34°C - 38°C | 18 ± 2 h

+

(B) Second enrichment

0.1 ml of primary culture +
10 ml CSB

41,5°C | 18 ± 2 h

Presumed isolation.

0, 1 ml of **B** in CCI Agar.

41,5°C | 24 h ± 2 h

***Cronobacter* spp.**
Blue to blue-green colonies.

Others in CCI agar
White colonies without/with green, gray or black center
Yellow or red colonies.

Isolation of suspected colonies.

Once suspected colonies have been identified, streak 5 colonies in a non-selective agar: TSA Agar.

34°C - 38°C | 21 h ± 3 h

Confirmation.

Select well-isolated colonies from selective media plates to perform the following biochemical confirmation tests:

Oxidase: **Negative**

Hydrolysis of a α-D PNP substrate glucopyranoside: **Positive**

L-lysine decarboxylase: **Negative**

L-ornithine decarboxylase: **Negative**

Fermentation of carbohydrates:

- Sucrose: **Positive**

OPTIONAL

Methyl red: **Strain dependent**
Voges-Proskauer: **Negative**

Enrichment.

X g/ml sample + 9 g/ml mTSB + N.

41,5ºC | 18 h - 24 h

Presumed isolation.

Concentration by immunomagnetic separation (IMS) at 6h and 12h - 18h of incubation.

NOTE: At 6h it can give a presumed positive result that can turn negative after incubating for 12h - 18h.

50 µl of magnetic particles in CT-SMAC Agar.

37ºC | 18 h - 24 h

***E. coli* O157:**
Transparent colonies with a pale brown-yellowish appearance.

50 µl of magnetic particles in CondaChrome® *E. coli* O157:H7 Agar.

37ºC | 18 h - 24 h

***E. coli* O157:**
Colonies with a pale pink appearance.

Isolation of suspected colonies.

Once the suspected colonies have been identified in each isolation medium, streak at least 5 colonies in Nutritive Agar.

37ºC | 18 - 24 h

Confirmation.

Select well-isolated colonies from selective medium plates to perform the following tests:

BIOCHEMISTRY
Indol: **Positive**

SEROLOGICAL
Only for positive indol colonies

OPTIONAL
Flagellar antigens
Pathogenic characteristics

NOTE: Negative indol mutations have been found

DETECTION AND ENUMERATION OF *LISTERIA MONOCYTOGENES* AND *LISTERIA* SPP.

Enrichment.

(A) Primary culture

25 g/ml sample + 225 ml Listeria 1/2 Fraser Broth.

30°C | 25 h ± 1 h

(B) Second enrichment

0.1ml of primary culture + 10 ml Listeria Fraser Broth.

37°C | 24 h ± 2 h

Presumed isolation.

0.1 ml of A and B separately in Agar ALOA.

37°C | 24 - 48 h ± 2 h

***Listeria* spp.**
Blue-green colonies.

L. monocytogenes
Blue-green colonies and presence of opaque halo.

0.1 ml of A and B separately in Oxford Algar or Palcam Agar.

35°C ± 2°C| 24 - 48 h ± 2 h

Consult TDS for the medium used for the identification of suspicious colonies.

Isolation of suspected colonies.

Once suspected colonies have been identified, streak maximum 5 colonies/plate in a non-selective agar: Nutritive Agar, Blood Agar N°2 or Agar TSYE.

37°C | 24 - 48 h ± 2 h

Confirmation.

***Listeria* spp.**

Microscopy
Short bacilli or cocobacilli

Catalase activity
Positive

Listeria monocytogenes

Microscopy
Short bacilli or cocobacilli

Hemolytic activity
Positive

Fermentation of carbohydrates
- Rhamnose: **Positive**
- Xylose: **Negative**

Initial dilution.

See the ISO 6887 series of standards and any international standards appropriate for the product concerned.

Presumed isolation.

0.1 ml of primary culture/dilutions in ALOA Agar.

37°C | 24 h ± 2*

*Possible additional incubation under the same conditions.

Count for all colonies suspected of being *L. monocytogenes and Listeria* spp.

***Listeria* spp.**
Blue-green colonies.

L. monocytogenes
Blue-green colonies and presence of opaque halo.

Isolation of suspected colonies.

Once suspected colonies have been identified, streak 5 colonies in a non-selective agar: Nutritive Agar, Blood N° 2 Agar or TSYE Agar.

Consult TDS for the medium used to apply the incubation conditions.

Confirmation.

***Listeria* spp.**

Microscopy: **Short bacilli or cocobacilli**
Catalase activity: **Positive**

OPTIONAL

Voges-Proskauer Test: **Positive**
Motility: **Positive**

Listeria monocytogenes

Hemolytic activity: **Positive**
Fermentation of carbohydrates:

- Rhamnose: **Positive**
- Xylose: **Negative**

OPTIONAL

Microscopy: **Short bacilli or cocobacilli**
Catalase activity: **Positive**
Motility: **Positive**
CAMP test: **Positive**

Pre-enrichment.

25 g in 225 ml* in Buffered Peptone Water.

34°C - 38°C | 18 ± 2 h

*For specific products consult ISO 6887.

Selective enrichment.

0.1 ml in 10 ml of RVS Broth or MSRV Agar.

41,5°C | 24 ± 3 h

+

1 ml in 10 ml of MKTTn Broth.

34°C - 38°C | 24 ± 3 h

NOTE 1: For some products it is necessary to incubate for a further 24 ± 3 h.
NOTE 2: MSRV Agar only for mobile strains of *Salmonella* spp.: turbid gray area is observed around the inoculum.

Presumed isolation.

XLD Agar

34°C - 38°C | 24 ± 3 h

Salmonella spp.Typical black colony with light reddish halo.
For specific phenotypes consult TDS of the medium.

Secondary:
SS, Hektoen, Chromogenic or BGA Agar

See TDS of the medium used for incubation conditions and identification of suspicious colonies.

Isolation of suspected colonies.

Non-selective agar: Nutritive Agar or Sodium Chloride Enriched Nutritive Agar.

34°C - 38°C | 24 ± 3 h

Confirmation.

TSI Agar
Urea Agar
LDC medium
Latex test

OPTIONAL
Detection of β-galactosidase
Indol reaction

DETECTION OF *SHIGELLA* SPP.

PROCEDURE IN ACCORDANCE WITH ISO 21567:2004

Initial dilution.

See ISO 6887 or ISO 8261 for the product in question.

Enrichment.

Dilution 1:10 + Shigella Broth.

41,5°C ± 1 °C | 16 h - 20 h in anaerobiosis.

Isolation.

Three selective agar plates are inoculated.

MacConkey Agar (Low selectivity)	XLD Agar (Intermediate selectivity)	Hektoen Agar (High selectivity)
	37°C± 1°C | 20 h - 24 h	
Shigella sonnei Colorless to pale pink colonies.	***Shigella sonnei*** Translucent colonies with red/cherry center.	***Shigella sonnei*** Raised green wet colonies.
Shigella spp. Colorless/translucent colonies (lactose negative).	***Shigella spp.*** Translucent colonies with red/cherry center.	***Shigella spp.*** Green wet colonies.

Isolation of suspected colonies.

Once suspected colonies have been identified, streak maximum 5 colonies/plate in a non-selective agar: Nutritive agar.

37°C± 1°C | 20 h - 24 h

Confirmation.

Select well-isolated colonies from the selective medium plates and perform the following biochemical and serological confirmation tests:

Triple sugar iron Agar (TSI inclined)

Semi-solid nutritive agar: **Negative mobility**

Urea Agar: **Negative**

L-lysine decarboxylation: **Negative**

Decarboxylation of L-ornithine: **Positive** (*S. sonnei*), **Negative** (*Shigella* spp.)

Detection of Indol formation: **Negative** (*S. sonnei*), **variable** (*Shigella* spp.)

Detection of β-galactosidase

Use of sugars

Sodium acetate (complementary): **no growth or very poor growth**

Antigen differentiation

Agglutination tests

Enrichment.

Dilutions: See ISO 6887 or any other international standard specific to the product in question.

A | Initial suspension

25 g/ml sample +
225 ml Alkaline Peptone Water

41,5°C ± 1°C | 6 h ± 1 h
37°C ± 1°C | 6 h ± 1 h

+

B | Selective enrichment

1 ml of initial suspension +
10 ml Alkaline Peptone Water

41,5°C ± 1°C | 6 h ± 1 h
37°C ± 1°C | 6 h ± 1 h

NOTE: The incubation conditions shall be determined by the target species and the treatment of the product.

Presumed isolation.

0.1 µl of **A and B** in TCBS Agar.

37°C ± 1°C | 24 h ± 3 h

V. parahaemolyticus* and *V. vulnificus
greenish colonies of 2 - 3 mm
V. cholerae
yellowish colonies of 1 - 2 mm

0.1 µl **A and B** in CondaChrome® Vibrio Agar.

35°C ± 1°C | 24 h – 48 h

V. parahaemolyticus
blue-green colonies
V. alginolyticus
colorless colonies
V. cholerae* and *V. vulnificus
pink colonies

Isolation of suspected colonies.

Once suspected colonies have been identified, streak at least 5 colonies in a non-selective agar: Saline Nutritive Agar (SNA).

37°C ± 1°C | 24 h ± 3 h

Confirmation.

Select well-isolated colonies from the selective media plates and perform the following biochemical confirmation tests:

Oxidase: **Positive**
Lysine decarboxylase in saline medium: **Positive**
Arginine dihydrolase in saline medium: **Negative**
Detection of β-galactosidase: **Species dependent**
Indol: **Positive**
Halotolerance: **Species dependent and NaCl []**

OPTIONAL

Microscopic examination
Motility

DETECTION OF PATHOGENIC *YERSINIA ENTEROCOLITICA*

PROCEDURE IN ACCORDANCE WITH ISO 10273:2017

Enrichment.

See the ISO 6887 series of standards and any international standards appropriate for the product concerned.

(A) Initial suspension

25 g/ml sample + 225 ml PSB Broth

25°C | 44 h ± 4 h

(B) Selective enrichment

10 ml of initial suspension + 90 ml ITC Broth

25°C | 44 h ± 4 h

Isolation.

0.1ml of **A** directly without enrichment in CIN Agar.

30°C | 24 h ± 2 h

TREATMENT BY KOH[a]

0.5 ml separately enriched A and B + 4.5 ml of KOH solution.

20 s ± 5 s

After treatment, **A and B**[a] separately in CIN Agar.

Pathogenic Yersinia enterocolitica
Small colonies (≤1 mm) with transparent edges and dark red center.

Isolation of suspected colonies.

Once suspected colonies have been identified, streak at least 5 colonies in a non-selective agar: Nutritive Agar, Nutritive Blood Agar or TSA Agar.

Consult TDS for the medium used to apply the incubation conditions.

Confirmation.

Select well-isolated colonies from selective media plates to perform the following biochemical confirmation tests:

Urea: **Positive**
Lysine decarboxylase: **Negative**
Arginine dihydrolase: **Negative**
Phenylalanine deaminase: **Negative**
Fermentation of carbohydrates:
- Sucrose: **Positive**
- Sorbitol: **Positive**

Fermentation of carbohydrates:
- Rhamnose: **Negative**
- Melibiose: **Negative**
- Citrate: **Negative**

OPTIONAL (BIOLOGICAL TYPING)
Aesculin
Xylose
Pirazinamidase
Tween-esterase/lipase
Trehalose
Indol

Indicator and spoilage microorganisms

Indicator and spoilage microorganisms

ENUMERATION OF MESOPHILIC LACTIC ACID BACTERIA

DETECTION AND ENUMERATION OF *CLOSTRIDIUM* SPP.

ENUMERATION OF COLIFORMS

DETECTION AND ENUMERATION OF *ENTEROBACTERIACEAE*

DETECTION AND ENUMERATION OF *ESCHERICHIA COLI*

ENUMERATION OF B-GLUCURONIDASE-POSITIVE *ESCHERICHIA COLI*

ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI

ENUMERATION OF MESOPHILIC MICROORGANISMS

ENUMERATION OF YEASTS AND MOULDS

ENUMERATION OF PRESUMPTIVE *PSEUDOMONAS* SPP.

ENUMERATION OF MESOPHILIC LACTIC ACID BACTERIA

COLONY-COUNT TECHNIQUE AT 30°C
PROCEDURE IN ACCORDANCE WITH ISO 15214:1998

Initial suspension.

See ISO 6887 series for the product concerned.

Presumed isolation.

1 ml of sample or initial suspension in MRS Agar.

30°C | 72 h ± 3 h

Plate count with 300 > 15 colonies from at least two successive dilutions.

Confirmation.

Due to the possible growth in the MRS medium of species other than lactic acid ones, it may be necessary to confirm the colonies by:

- Gram staining
- Catalase test

Initial dilution.

See the ISO 6887 series and the ISO standard specific to the product in question. Series of decimal dilutions to obtain between 10 and 150 colonies per 90 mm plate or 10 and 360 colonies per plate 140 mm plate.

80°C | 10±1' *Optional: Heat treatment for the selection of spores.

Presumed isolation.

1 ml of the suspension or each dilution on an empty plate + Iron Sulfite Agar at 44°C-47°C: 90 mm plate - 12 to 15 ml or 140 mm plate - 45 to 50 ml.

Once solidified, add a second layer of Iron Sulfite Agar: 90 mm plate - 10 ml or 140 mm plate - 20 ml, and allow its solidification.

37°C | 48 ± 2h in anaerobiosis*

Sulfite-reducing bacteria
Black-grayish to yellow-brown colonies.

Isolation of suspected colonies.

Once suspected clonies are identified, streak 5 colonies/plate in a non-selective agar (Columbia, TSA or BHI Agar) in duplicate, to incubate under aerobiotic and anaerobiotic conditions.

37°C | 20 ± 2

Confirmation.

If the growth of a typical colony occurs in the incubated plate under anaerobiotic conditions and not aerobiosis, the colony belongs to the genus *Clostridia* and is counted as sulfite-reducing *Clostridium* spp.

If the growth of a typical colony occurs under both conditions, the colony does not belong to the genus *Clostridia*, therefore they cannot be counted as sulfite-reducing *Clostridium* spp.

Initial suspension.

See the ISO 6887 series and the ISO standard specific to the product in question. Series of decimal dilutions to obtain between 10 and 150 colonies per 90 mm plate or 10 and 360 colonies per plate 140 mm plate.

80°C | 10±1'

*Optional: heat treatment for spore selection.

Presumed isolation.

1 ml of the sample (liquid sample) or 10^{-1} dilution (other products) in an empty plate + Tryptose Sulfite Cycloserine Agar at 44°C-47°C: 90 mm plate - 12 to 15 ml or 140 mm plate - 30 to 35 ml.

Once solidified, add a second Tryptose Sulfite Cycloserine Agar layer: 90 mm plate - 5 ml or 140 mm plate - 12 ml and allow to solidify.

With a sterile pipette, the process is repeated with 10^{-1} dilutions (liquid sample) or 10^{-2} dilutions (other products). If necessary, repeat with more dilutions, at least two consecutive decimal dilutions.

37°C | 20 h ± 2 h in anaerobiosis

Clostridium perfringens:
Black or gray to yellowish-brown colonies.

Count C. perfringens characteristic colonies in plates with less than 150 colonies (90 mm) or less than 365 colonies (140 mm)*.

*Do not leave more than 30' out of the anaerobic atmosphere before counting.

Isolation of suspected colonies.

Once suspected colonies are identified, streak 5 colonies/plate in a non-selective agar (Columbia Agar, TSA or BHI Agar) in duplicate to incubate under anaerobiotic conditions.

37°C | 20 h ± 2 h in anaerobiosis

Confirmation.

Select well-isolated colonies to perform for the following tests:

Acid Phosphatase Method

Spread the colonies on filter paper and add 2 to 3 drops of the acid phosphatase reagent.

***Clostridium perfringens*:**
Purplish color in 3-4'

OPTIONAL
Differentiation of pathogenic and non-pathogenic strains for humans.

Motility Test Method in Nitrate Motility Medium

Add colonies into Nitrate Motility Medium tubes

37°C | 20 h ± 2 h in anaerobiosis

***Clostridium perfringens*:**
Sulphite production: **positive**
Motility: **negative**
Indole production: **negative**

ENUMERATION OF COLIFORMS

COLONY-COUNT TECHNIQUE
PROCEDURE IN ACCORDANCE WITH ISO 4832:2006

Initial dilution.

See ISO 6887 or ISO 8261 for the product in question.

Isolation.

1 ml of initial suspension in VRBL Agar medium, inoculate a plate per dilution.

30°C or 37°C | 24 h ± 2 h

Isolation of suspected colonies.

Perform the count of suspected colonies on plates with less than 150 colonies.

Confirmation.

Inoculate 5 of these atypical colonies in Brilliant Green Bile Broth.

30°C or 37°C | 24 h ± 2 h

Coliforms:
Pink, reddish or purple colonies, sometimes with a precipitation halo.

Enrichment.

Prepare the samples and dilutions, depending on the type of sample, in accordance with ISO 6887, ISO 7218, ISO 8261. Dilution in Buffered Peptone Water 0.1% is recommended.

37°C | 18 h ± 2 h

Presumed isolation.

Inoculate a VRBG Agar plate with the enriched primary culture.

37°C | 18 h ± 2 h

Enterobacteria
Pink, reddish or purple colonies with and without precipitation halos.

Isolation of suspected colonies.

Once suspected colonies have been identified, streak in a non-selective agar: Nutritive Agar.

Consult TDS for the medium used to apply the incubation conditions.

Confirmation.

Select well-isolated colonies from the selective media plates and perform the following biochemical confirmation tests:

Oxidase: **Negative**

Fermentation of carbohydrates
- Glucose: **Positive**

Presumed isolation.

Inoculate a VRBG Agar plate with the initial suspension and/or dilutions.

37°C | 18 h ± 2 h

Enterobacteria
Pink, reddish or purple colonies with and without precipitation halos.

Isolation of suspected colonies.

Perform the count of suspected colonies and streak 5 of these colonies/plate in a non-selective agar: Nutritive Agar.

Consult TDS forf the medium used to apply the incubation conditions.

Confirmation.

Select well-isolated colonies from the selective media plates and perform the following biochemical confirmation tests:

Oxidase: **Negative**

Fermentation of carbohydrates
- Glucose: **Positive**

DETECTION AND ENUMERATION OF *ESCHERICHIA COLI*

MOST PROBABLE NUMBER TECHNIQUE
PROCEDURE IN ACCORDANCE WITH ISO 7251:2005

Initial dilution.

See ISO 6887 series or ISO 8261 for the product concerned.
For **enumeration**, use 3 tubes per dilution; in some cases up to 5 tubes are required.

Enrichment.

1 ml of the initial suspension + 9 ml Lauryl Sulfate Broth or 10 ml of the initial suspension + 10 ml Lauryl Sulfate broth x2 (double concentration).

37°C | 24 h ± 2 h*

*Possibility of incubating for an additional 24 h if no opacity or gas production is observed.

Isolation.

If opacity or gas is observed, inoculate in EC Medium.

44°C | 24 h ± 2 h

*Possibility of incubating for an additional 24 h if no opacity or gas production is observed.

Identification of suspected colonies

If visible gas is observed, inoculate in pre-heated Peptone Water at 44°C.

44°C | 48 h ± 2 h

Confirmation.

Add 0.5 ml of indol reagent to the Peptone Water tubes, mix and examine after 1 min.

Presence of gas in EC Medium: **Positive**
Indol: **Positive**

ENUMERATION OF B-GLUCURONIDASE-POSITIVE *ESCHERICHIA COLI*

PART 1: COLONY-COUNT TECHNIQUE AT 44°C USING MEMBRANES
PROCEDURE IN ACCORDANCE WITH ISO 16649-1:2018

Initial dilution.

In accordance with ISO 6887 and the standard for the specific product to be analyzed.

Enrichment.

1 ml of initial suspension on MMBG* Broth.

37°C | 4 ± 0.25 h

*If only the initial suspension is used, prepare in duplicate.

Presumed isolation.

Transfer membrane to TBX Agar.

44°C |20 h - 24 h

Reading of results.

CFU count in plates with typical colonies < 150 and < 300 (typical and non-typical).

B-glucuronidase-positive *E. coli*
Typical colonies of blue or blue-green color.

ENUMERATION OF B-GLUCURONIDASE-POSITIVE *ESCHERICHIA COLI*

PART 2: COLONY-COUNT TECHNIQUE AT 44°C
PROCEDURE IN ACCORDANCE WITH ISO 16649-2:2001

Initial suspension.

In accordance with ISO 6887 and the specific standard for the specific product to be analyzed.

Presumed isolation.

1 ml of sample or initial suspension (10^{-1}) on an empty Petri plate.

Add 15 ml of TBX Agar at a T^{a} of 44 - 47°C and mix carefully.

44 ± 1°C | 18 h - 24 h

Note 1: If you suspect the presence of stressed cells, pre-incubate for 4 h at 37°C, and then raise the temperature to 44°C for 18 - 24 h.

Reading of results.

CFU count for plates with typical colonies < 150 and < 300 (typical and non-typical).

B-glucuronidase-positive *E. coli*
Typical colonies of blue or blue-green color.

Initial suspension.

In accordance with ISO 6887 and the specific standard for the specific product to be analyzed.

Enrichment.

Inoculate* with sample or initial suspension (10-1) in 3-5 tubes of MMBG Broth concentration 2x and 3-5 tubes of concentration 1x.

37 ± 1°C | 24 ± 2 h

*Large sample volumes (10 ml) are added to equal volumes of medium 2x, while the volumes of 1 ml (or the dilution thereof) are added to 5 ml of medium 1x.

Presumed isolation.

Streak from tubes with change of coloration by acid production on a TBX Agar plate.

44 ± 1°C |22 ± 2 h

Reading of results.

Count plates with typical colonies < 150 cfu and < 300 cfu (typical and non-typical).

B-glucuronidase-positive *E. coli*
Typical colonies of blue or blue-green color.

ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI

PART 1: METHOD USING BAIRD-PARKER AGAR MEDIUM
PROCEDURE IN ACCORDANCE WITH ISO 6888-1:2021

Initial dilution.

See the ISO 6887 series of standards and any international standards appropriate for the product concerned.

Presumed isolation.

0.1 ml of initial suspension in Baird Parker Agar.

See ISO 7218 for the number of plates to use in accordance with the dilutions in your analysis.

34°C - 38°C | 48 h ± 4 h

Coagulase-positive staphylococci
Black or gray colonies surrounded by a transparent area with an opalescent ring.

After 48 h ± 4 h the colonies can lose their typical appearance, so the count may be incorrect.

Confirmation.

To confirm the purity of the selected colony, streak the suspension in a non-selective agar: Nutritive Agar or Blood Agar.

Transfer an inoculum (suspected colony) to BHI Broth.

For the coagulase test, add 0.1 - 0.3 ml of rabbit plasma.

34°C - 38°C | 24 h ± 2 h

Coagulase test: **Positive**

ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI

PART 2: METHOD USING RABBIT PLASMA FIBRINOGEN AGAR MEDIUM
PROCEDURE IN ACCORDANCE WITH ISO 6888-2:2021

Initial dilution.

See the ISO 6887 series of standards and any international standards appropriate for the product concerned.

Presumed isolation.

1 ml of initial suspension in 18-20 ml of RPFA Medium (Baird Parker Agar + RPF supplement), freshly prepared (3 mm). Mix and let solidify, and then place in the incubator under the specified conditions.

34°C - 38°C | 24 - 48 h ± 4 h

Coagulase-positive staphylococci
*Black, gray or white colonies surrounded by an opaque halo of precipitation.

*After 48 h ± 4 h the colonies may lose their typical appearance, so the count may be incorrect.

Confirmation.

No confirmation is required, as coagulase activity is detected with the RPF Medium.

ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCOCCI

PART 3: DETECTION AND MPN TECHNIQUE FOR LOW NUMBERS
PROCEDURE IN ACCORDANCE WITH ISO 6888-3:2003

Enrichment.

See the ISO 6887 series of standards and any international standards appropriate for the product concerned.

DETECTION

A | Initial suspension

1 ml initial dilution + 9 ml GC Broth (Giolitti-Cantoni) or 10 ml initial suspension + 10 ml GC Broth [2x] (double concentration).

B | Selective enrichment

A + 90 ml deaerated GC broth supplemented with potassium tellurite.

E.g. 5 ml/g of sample to 45 ml of GC Broth in 450 ml of supplemented GC broth.

ENUMERATION

B | Selective enrichment

10 ml or 1 ml sample/dilution [2x] + 3 tubes per medium: GC Broth and GC Broth 2x, deaerated and supplemented with potassium tellurite.

Pour on a layer of agar or paraffin to form a seal, then allow to solidify.

37°C | 24 h ± 2 h*

*Possibility of incubating a further 24 h ± 2 h if no blackening is observed.

Presumed isolation.

With the aid of a wire loop, seed **B** in Baird Parker Agar or Medium RPF.

t_1 37°C | 24 h ± 2 h
t_2 37°C | 48 h ± 2 h

Consult TDS for the medium used to identify the appearance of typical colonies of coagulase-positive staphylococci.

Confirmation.

Baird Parker Agar
Transfer an inoculum (suspected colony) to BHI Broth.

Coagulase test:
Add 0.1-0.3 ml of rabbit plasma.

37°C | 24 h ± 2 h Coagulase test: **Positive**

RPF medium
No confirmation is required, as coagulase activity is detected with the RPF Medium.

ENUMERATION OF MESOPHILIC MICROORGANISMS

PART 1: COLONY-COUNT AT 30°C
BY THE POUR PLATE TECHNIQUE
PROCEDURE IN ACCORDANCE WITH ISO 4833-1:2013 | AMD 1:2022

Initial dilution.

Prepare the samples and dilutions, depending on the type of sample, in accordance with ISO 6887.

Isolation.

1 ml of sample (liquid) / 1 ml of initial dilution (10^{-1}) (other products) on empty Petri plate.

+

1 ml of 10^{-1} (liquids) / 1 ml of 10^{-2} (other products) on empty Petri plate.

Add 12-15 ml of PCA Agar at a T° of 44°C to 47°C and mix carefully.

30°C ± 1°C | 72h ± 3 h

Note 1: If you suspect microorganism overgrowth on the surface, once cooled, pour 4 ml more of PCA Agar over the inoculated medium as a coating layer.

Reading of results.

Count for plates with number of colonies between 15 and 300.

ENUMERATION OF MESOPHILIC MICROORGANISMS

PART 2: COLONY-COUNT AT 30°C BY THE SURFACE PLATING TECHNIQUE
PROCEDURE IN ACCORDANCE WITH ISO 4833-2:2013 | AMD 1:2022

Initial dilution.

Prepare the samples and dilutions, depending on the type of sample, in accordance with ISO 6887.

Isolation.

0.1 ml of sample (liquid) / 0.1 ml of initial suspension (other products) in PCA Agar.

+

0.1 ml of 10^{-1} (liquid products) / 0.1 ml of 10^{-2} (other products) in PCA Agar.

30°C ± 1°C | 72h ± 3 h

Reading of results.

Count for plates with number of colonies between 15 and 300.

Note 1: If extended colonies are expected, the plates are examined after 24-48 h to indicate visible colonies and compare after incubation is completed.

ENUMERATION OF YEASTS AND MOULDS

PART 1: COLONY-COUNT TECHNIQUE FOR PRODUCTS WITH AW > 0.95
PROCEDURE IN ACCORDANCE WITH ISO 21527-1:2008

Initial dilution.

Prepare the samples and dilutions, depending on the type of sample, in accordance with ISO 6887, ISO 7218, ISO 8261. Dilution in Buffered Peptonade Water 0.1% is recommended.

Isolation.

0.1 ml of sample / 0.1 of initial dilution in DRBC Agar.

+

0.1 ml of 10^{-1} (liquids) / 0.1 ml of 10^{-2} (other products) in DRBC Agar.

25°C ± 1°C | 5-7 days

Note 1: In case of a low number of molds and yeasts, volumes of up to 0.3 ml of 10^{-1} may be added.

Reading of results.

Count for plates with number of colonies/propagules < 150.

Note 2: If necessary, count yeast colonies and molds separately.
Note 3: In the event of fast-growing molds, perform the count at 2 days and then at 5 -7 days.

ENUMERATION OF YEASTS AND MOULDS

PART 2: COLONY-COUNT TECHNIQUE FOR PRODUCTS WITH AW ≤ 0.95
PROCEDURE IN ACCORDANCE WITH ISO 21527-2:2008

Initial dilution.

Prepare the samples and dilutions, depending on the type of sample, in accordance with ISO 6887, ISO 7218, ISO 8261. Dilution in Buffered Peptonade Water 0.1% is recommended.

Isolation.

0.1 ml of sample / 0.1 of initial dilution in DG18 Agar.

+

0.1 ml of 10^{-1} (liquids) / 0.1 ml of 10^{-2} (other products) in DG18 Agar.

25°C ± 1°C | 5-7 days

Note 1: In case of a low number of molds and yeasts, volumes of up to 0.3 ml of 10^{-1} may be added.
Note 2: If you suspect *Xeromyces bisporus*, incubate for 10 days.

Reading of results.

Count for plates with number of colonies/propagules < 150.

Note 3: If necessary, count yeast colonies and molds separately.
Note 4: In the event of fast-growing molds, perform the count at 2 days and then at 5 -7 days.

ENUMERATION OF PRESUMPTIVE *PSEUDOMONAS SPP.*

METHOD FOR THE ENUMERATION
PRESENT IN MEAT AND MEAT PRODUCTS
PROCEDURE IN ACCORDANCE WITH ISO 13720:2010

Initial dilution.

See the ISO 6887 series of standards (ISO 6887-1 and ISO 6887-2) and any international standards appropriate for the product in question.

Presumed isolation.

0.1 ml of the initial suspension in CFC Agar.

25°C ± 1°C | 44 h ± 4 h

***Pseudomonas* spp.:** Growth in CFC Agar.

Count colonies and retain plates with < 150 colonies.

Confirmation.

Select 5 colonies randomly from each of the retained plates:

*Oxidase: **Positive**

*Use a plastic or platinum-iridium alloy loop.

Product list

INDEX

Sample preparation - ISO 6887

CAT	PRODUCT	FORMAT
1402	Buffered Peptone Water	500 g
6702	Buffered Peptone Water	2x5L
6705	Buffered Peptone Water	3x3L
6707	Buffered Peptone Water	5x2L
5020	Buffered Peptone Water	10 x 225 ml
4250	Buffered Peptone Water	20 tubes
1405	Saline Peptone Water	500 g
6710	Saline Peptone Water (Maximum Recovery Diluent - MRD)	3x3L
6711	Saline Peptone Water (Maximum Recovery Diluent - MRD)	2x5L
4101	Ringer Solution 1/4	20 tubes
1406	Buffered Saline Peptone Water	500 g
1405	Saline Peptone Water	500 g
4044	Saline Peptone Water	20 tubes
5182	Saline Peptone Water	10 x 90 ml
5153	Buffered Peptone Water	10 x 100 ml
5171	Buffered Peptone Water	10 x 90 ml

Bacillus cereus - ISO 7932

CAT	PRODUCT	FORMAT
1343	Selective Agar Base for Bacillus Cereus (MYP)	500 g
6021	Supplement for Bacillus Cereus	10 vials
5152	Egg yolk emulsion	100 ml
945	Selective Agar for Bacillus Cereus (MYP)	20 plates
1328	Blood Agar No. 2 Base	500 g
912	Blood Agar No. 2	20 plates

Campylobacter spp. - ISO 10272

CAT	PRODUCT	FORMAT
1441	Bolton Broth ase for selective enrichment	500 g
4658	Bolton broth base	10 x 225 ml
4659	Bolton broth base	10 x 250 ml
4675	Bolton broth base	10 x 90 ml
6070	Bolton Selective Supplement	10 vials
2166	Preston Broth base for Campylobacter	500 g
6081	Preston Campylobacter supplement	10 vials
1129	Blood-free Campylobacter Agar Base (CCDA)	500 g
6053	CCDA Supplement (Blood-free Campylobacter)	10 vials
878	Campylobacter CCDA Agar	20 plates
1104	Columbia Agar Base	500 g
931	Columbia Agar + 5% Lamb Blood	20 plates
1131	Campylobacter Agar Base (Preston)	500 g

Cronobacter spp. - ISO 22964

CAT	PRODUCT	FORMAT
1402	Buffered Peptone Water	500 g
6702	Buffered Peptone Water	2x5L
6705	Buffered Peptone Water	3x3L
6707	Buffered Peptone Water	5x2L
5020	Buffered Peptone Water	10 x 225 ml
4250	Buffered Peptone Water	20 tubes
5153	Buffered Peptone Water	10 x 100 ml
5171	Buffered Peptone Water	10 x 90 ml
2143	Cronobacter Selective Broth (CSB)	500 g
1446	Chromogenic agar for Cronobacter isolation (CCI)	500 g
866	Chromogenic Agar for Cronobacter CCI	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
2149	Means for decarboxylation of L-Ornithine	500 g
1208	Lysine Decarboxylase Broth	500 g

Escherichia coli O157 - ISO 16654

CAT	PRODUCT	FORMAT
1292	Trypticasein Soy Broth Modified with Novobiocin (mTSB)	500 g
1099	MacConkey Agar with Sorbitol (CT-SMAC)	500 g
6064	Cefixime Tellurite (CT) Supplement	10 vials
1588	Chromogenic Agar Base E. coli O157:H7	500 g
6064	Cefixime Tellurite (CT) Supplement	10 vials
1060	Nutritive Agar	500 g
902	Nutritive Agar	20 plates
1237	Tryptophane Culture Broth	500 g
4027	Tryptophane Broth	20 tubes
5205	Kovac reagent	100 ml

Listeria monocytogenes spp. and *Listeria* spp. - ISO 11290

CAT	PRODUCT	FORMAT
1182	Listeria Fraser Broth Base	500 g
1183	1/2 Fraser Broth Base	500 g
4053	Listeria 1/2 Fraser Broth Enrichment	20 tubes
5022	Listeria 1/2 Fraser Broth Enrichment	10 x 225 ml
6703	1/2 Fraser Broth	2:x5L
6706	1/2 Fraser Broth	3 x x3L
6708	1/2 Fraser Broth	5x2L
6001	Selective supplement for Listeria Fraser	10 vials
6002	Selective supplement for Listeria 1/2 Fraser	10 vials

CAT	PRODUCT	FORMAT
1345	Chromogenic Agar Base for Listeria in accordance with Ottaviani And Agosti (ALOA)	500 g
1141	Listeria Palcam Agar Base	500 g
1133	Listeria Oxford Agar Base	500 g
884	Chromogenic agar for Listeria in Accordance with to Ottaviani and Agosti (ALOA)	120 plates
939	Chromogenic agar for Listeria in Accordance with to Ottaviani and Agosti (ALOA)	20 plates
955	Listeria Palcam Agar	20 plates
4024	Listeria Fraser Enrichment Broth	20 tubes
4053	Listeria 1/2 Fraser Broth Enrichment	20 tubes
5022	Listeria 1/2 Fraser Broth Enrichment	10 x 225 ml
5023	Listeria Fraser Broth Enrichment	10 x 225 ml
6003	Listeria Oxford Selective Supplement	10 vials
6004	Listeria Palcam Selective Supplement	10 vials
6031	Listeria lipasa C. Supplement	10 vials
6040	Listeria Selective Chromogenic Supplement	10 vials
1060	Nutritive Agar	500 g
902	Nutritive Agar	20 plates
1328	Blood No. 2 Agar Base	500 g
912	Blood Agar No. 2	20 plates
1398	TSYEA Agar(Tryptone Soy Yeast Extract Agar)	500 g
1342	Base of broth for the use of carbohydrates	500 g
6001	Selective supplement for Listeria Fraser	10 vials
6002	Selective supplement for Listeria 1/2 Fraser	10 vials
1345	Chromogenic Agar base for Listeria de in accordance with Ottaviani And Agosti (ALOA)	500 g
884	Chromogenic agar for Listeria	120 plates
939	Listeria chromogenic Agar	20 plates
6031	Listeria lipasa C. Supplement	10 vials
6040	Listeria Selective Chromogenic Supplement	10 vials
1060	Nutritive Agar	500 g
902	Nutritive Agar	20 plates
1328	Blood Agar No. 2 Base	500 g

Salmonella spp. - ISO 6579

CAT	PRODUCT	FORMAT
1376	Modified semi-solid medium Rappaport Vassiliadis (MSRV)	500 g
1174	Rappaport Soy Broth (Vassiliadis)	500 g
4245	Rappaport Soy Broth (Vassiliadis)	20 tubes
1173	Muller-Kauffmann Broth Base with Bright Green And Novobiacin (MKTTN)	500 g
4667	Muller Kauffmann Tetrationate-Novobiocin (MKTTN)	10 x 100 ml
4021	Muller Kauffman Tetrationate Broth Base	20 tubes
1274	XLD Agar (Xylose Lysine Seoxycholate Agar)	500 g
847	XLD Agar (Xylose Lysine Seoxycholate Agar)	20 plates
1172	Triple Sugar and Iron Agar(TSI)	500 g
4204	Triple Sugar and Iron Agar(TSI)	20 tubes
2180	Urea Agar Base (Christensen)	500 g
5100	Solution Urea 40%	100 ml
1110	Urea Agar Base (Christensen)	500 g

CAT	PRODUCT	FORMAT
1176	Decarboxylation of Lysine Medium	500 g
1208	Lysine Decarboxylase Broth	500 g
4229	Lysine Decarboxylase Broth	20 tubes
1078	Brilliant Green Agar (BGA)	500 g
915	Brilliant Green Agar (BGA)	20 plates
1064	Salmonella Shigella Agar (SS Agar)	500 g
909	Salmonella Shigella Agar (SS Agar)	20 plates
1122	Salmonella Chromogenic Agar	500 g
1030	Hektoen Enteric Agar	500 g
918	Hektoen Enteric Agar	20 plates
6141	Salmonella Latex Test	50 test

Shigella spp. - ISO 21567

CAT	PRODUCT	FORMAT
2078	Shigella Broth	500 g
1052	MacConkey Agar	500 g
900	MacConkey Agar	20 plates
1274	XLD Agar (Xylose Lysine Seoxycholate Agar)	500 g
847	XLD Agar (Xylose Lysine Seoxycholate Agar)	20 plates
1030	Enteric Hektoen Agar	500 g
918	Enteric Hektoen Agar	20 plates
1172	Triple Sugar and Iron Agar (TSI)	500 g
4204	Triple Sugar and Iron Agar (TSI)	20 tubes
2046	Semi-solid nutritive Agar	500 g
1176	Decarboxylation of Lysine Medium	500 g
4229	Lysine Decarboxylase Broth	20 tubes
2180	Urea Agar Base (Christensen)	500 g
1237	Tryptophane Culture Broth	500 g
1192	Differential Acetate Agar	500 g

Vibrio spp. - ISO 21872

CAT	PRODUCT	FORMAT
2155	Saline Alkaline Peptone Water	500 g
4018	Alkaline Peptone Water	20 tubes
4685	Alkaline Peptone Water	10 x 225 ml
1074	TCBS Agar	500 g
957	TCBS AgarD	20 plates
1237	Tryptophane Culture Broth	500 g
4027	Tryptophane Broth	20 tubes
5205	Kovac reagent	100 ml

Yersinia enterocolitica - ISO 10273

CAT	PRODUCT	FORMAT
1298	Peptone Sorbitol and Bile Salts Broth (PSB)	500 g
4683	Peptona Bile and Sorbitol Broth (PBS)	10 x 100 ml
1361	Irgasan Ticarcillin and Potassium Chlorate (TTI) Broth	500 g
6051	ITC supplement	10 vials
1126	Selective Yersinia Agar Base (CIN)	500 g
6033	Yersinia Selective Supplement (CIN)	10 vials
933	Yersinia CIN Agar	20 plates
1060	Nutritive Agar	500 g
902	Nutritive Agar	20 plates
1328	Blood Agar No. 2 Base	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
1208	Lysine Decarboxylase Broth	500 g
1176	Decarboxylation of Lysine Medium	500 g
1040	Phenylalanine Agar	500 g
1014	Simmons Citrate Agar	500 g
4001	Simmons Citrate Agar	20 tubes
1031	Bile Esculina Agar	500 g
1227	Urea Indol Broth	500 g
4212	Urea Indol Broth	20 tubes
1364	Kligler Iron Agar	500 g

Mesophilic lactic acid bacteria - ISO 15214

CAT	PRODUCT	FORMAT
4684	MRS low pH Agar	10 x 200 ml
1433	MRS Agar Low pH	500 g

Clostridium spp. - ISO 15213

CAT	PRODUCT	FORMAT
1029	TSC Agar Base (Tryptose Sulfite Cycloserine)	500 g
4660	TSC Agar (Tryptose Sulfite Cycloserine)	10 x 100 ml
4661	TSC Agar (Tryptose Sulfite Cycloserine)	10 x 200 ml
6020	Clostridium Perfringens Supplement (TSC)	10 vials
4728	TSC Agar (Tryptose Sulfite Cycloserine)	30 plates
1565	Nitrate Motility Medium Base	500 g
1559	Iron Sulfite Agar	500 g

Coliforms - ISO 4832

CAT	PRODUCT	FORMAT
1093	Violet Red Bile Lactose Agar (VRBL)	500 g
910	Violet Red Bile Lactose Agar (VRBL)	20 plates
4532	Violet Red Bile Lactose Agar (VRBL)	30 plates
4682	Violet Red Bile Lactose Agar (VRBL)	10 x 200 ml
5161	Violet Red Bile Lactose Agar (VRBL)	10 x 100 ml
1228	Brilliant Green Bile Broth 2%	500 g
4213	Brilliant Green Bile Broth 2%	20 tubes

Enterobacteriaceae - ISO 21528

CAT	PRODUCT	FORMAT
1092	Violet Red Bile Glucose Agar (VRBG)	500 g
911	Violet Red Bile Glucose Agar (VRBG)	20 plates
4524	Violet Red Bile Glucose Agar (VRBG)	30 plates
4670	Violet Red Bile Glucose Agar (VRBG)	10 x 200 ml
5158	Violet Red Bile Glucose Agar (VRBG)	10 x 100 ml
1355	Nutritive Agar enriched with Sodium Chloride	500 g
2150	Glucose OF Medium	500 g
4026	Glucose OF Medium	20 tubes

Escherichia coli - ISO 7251

CAT	PRODUCT	FORMAT
1310	Lauryl Sulfate Broth (Lauryl Tryptose Broth – LTB)	500 g
4039	Lauryl Sulfate Broth (Lauryl Tryptose Broth – LTB)	20 tubes
4040	Lauryl Sulfate Broth (Lauryl Tryptose Broth – LTB) C+	20 tubes
1522	EC Medium	500 g
4265	EC Medium	20 tubes
1403	Peptone Water (Tryptone Water)	500 g
4201	Peptone Water (Tryptone Water)	20 tubes
5160	Peptone Water (Tryptone Water)	10 x 100 ml

B-glucuronidase-positive *Escherichia Coli* - ISO 16649

CAT	PRODUCT	FORMAT
1151	TBX Chromogenic Agar (Tryptone Bile X-Glucuronide)	500 g
982	TBX Chromogenic Agar (Tryptone Bile X-Glucuronide)	20 plates
982	TBX Chromogenic Agar (Tryptone Bile X-Glucuronide)	20 plates
982	TBX Chromogenic Agar (Tryptone Bile X-Glucuronide)	20 plates
1365	Minerals Modified Glutamate Broth (MMBG)	500 g

Coagulase-positive staphylococci - ISO 6888

CAT	PRODUCT	FORMAT
1100	Baird Parker Agar Base	500 g
5129	Egg yolk Emulsion + Tellurite	100 ml
1331	Brain Heart Infusion Broth	500 g
4202	Brain Heart Infusion Broth	20 tubes
1060	Nutritive Agar	500 g
902	Nutritive Agar	20 plates
1328	Blood Agar No. 2 Base	500 g
912	Blood agar No. 2	20 plates
1100	Baird Parker Agar Base	500 g
6024	RPF supplement	10 vials
984	Baird-Parker Agar RPF	20 plates
4669	Baird Parker RPF Agar Base	10 x 90 ml
1287	Giolitti-Cantoni Broth	500 g
4228	Giolitti-Cantoni Broth	20 tubes
4261	Giolitti-Cantoni Broth (double concentration)	20 tubes
1100	Baird Parker Agar Base	500 g
5129	Egg yolk Emulsion + Tellurite	100 ml
6024	RPF supplement	10 vials
1331	Brain Heart Infusion Broth	500 g
4202	Brain Heart Infusion Broth	20 tubes

Mesophilic Microorganisms - ISO 4833

CAT	PRODUCT	FORMAT
1056	Standard Methods Agar (PCA)	500 g
903	Standard Methods Agar (PCA)	20 plates
4706	Standard Methods Agar (PCA)	30 plates
5112	Standard Methods Agar (PCA)	10 x 200 ml
5115	Standard Methods Agar (PCA)	10 x 100 ml
4105	Plate Count Agar (PCA)	20 tubes
4681	Standard Methods Agar (PCA) with Milk	10 x 200 ml
5172	Standard Methods Agar (PCA) with Milk	10 x 100 ml

Yeasts and moulds - ISO 21527

CAT	PRODUCT	FORMAT
1160	Rose Bengal Agar + Chloramphenicol + Dicloran (DRBC Agar)	500 g
833	Rose Bengal Agar + Chloramphenicol + Dicloran (DRBC Agar)	20 plates
1161	Dichloran Glycerol Agar (DG 18)	500 g

Pseudomonas spp. - ISO 13720

CAT	PRODUCT	FORMAT
1356	Pseudomonas Agar Base CFC	500 g
6036	CFC supplement	10 vials
829	Pseudomonas Agar CFC	20 plates

Annexes:
Rapid alternative methods

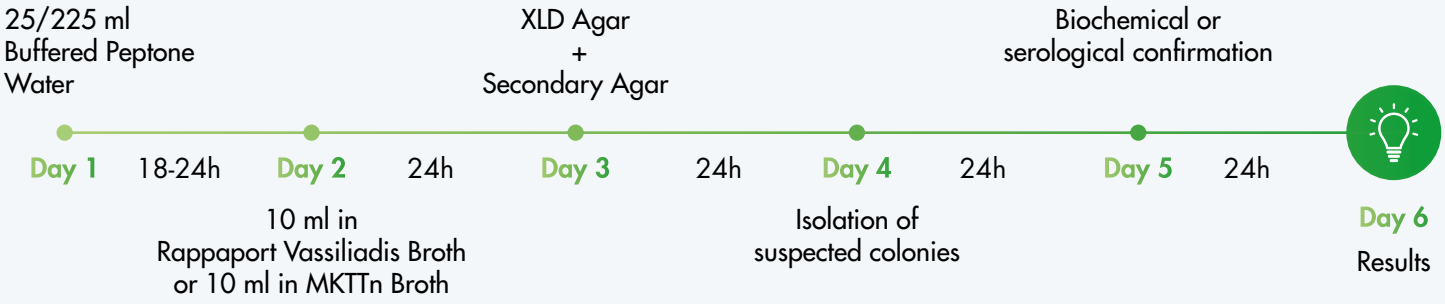
Perform your analyses faster and easier using Condagene®

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 habitual techniques.

Time | Specificity | Sensitivity

Salmonella

ISO 6579-1 method vs Condagene®



Why choose PCR for foodborne pathogen detection?

Complex and multi-step methods

Powerful screening tool

High number of samples to be analyzed

Pathogenic bacteria

Salmonella spp.; *L. monocytogenes; Campylobacter; Cronobacter;* STEC; *Vibrio* spp.

Allergens

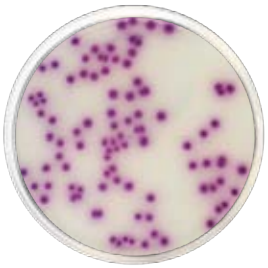
Almond ; Cashew; Celery; Hazelnut; Peanut; Lupin; Mustard; Pecan; Sesame; Soy bean, Walnut.

Learn more about CondaChrome®

CondaChrome® media contain in their composition a colorless chromogenic substrate, which thanks to the specific enzymatic activities of each microorganism, degrades and results in the release of an element known as a chromophore, which gives the colony an intense, specific color that allows **identification** of the bacteria at **first sight.**

- Quick results
- Time/space saving
- Easy interpretation
- Minimum investment

CondaChrome® Agar Salmonella

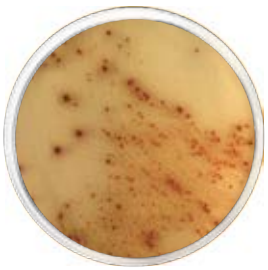


- For isolation of *Salmonella* spp.

Reading of colonies

- Magenta: *S. interiditis, S. typhimurium, S. typhi, S. dyarizonae*
- Colorless: *Proteus vulgaris*
- Blue green: *Escherichia coli*

CondaChrome® Agar E. coli O157:H7

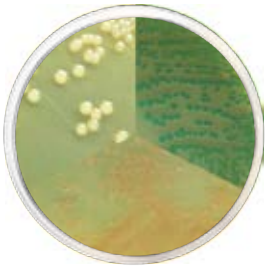


- For detection of E. coli O157:H7

Reading of colonies

- Pale Rose: *Escherichia coli O157;H7*
- Total inhibition: *Enterobacter, Salmonella, Escherichia coli, Enterococcus and Staphylococcus*

CondaChrome® Agar Vibrio



- For isolation and detection of *Vibrio* spp.

Reading of colonies

- Rose: *V. cholerae, V. vulnificus*
- Blue green: *V. parahemolyticus*
- Colorless: *V. alginolyticus*

Condagene®

Extraction kits

CAT	PRODUCT	FORMAT
6500	Extraction Condagene® Complex	100 rxn
6504	Condagene® Extraction Rapid	100 rxn
6505	Condagene® Extraction Rapid	250 rxn

CAT	PRODUCT	FORMAT
6506	Condagene® Extraction Column	50 rxn
6507	Condagene® Extraction Column	250 rxn

Pathogens

CAT	PRODUCT	FORMAT
6518	Condagene® Salmonella spp.	100 rxn
6519	Condagene® Listeria monocytogenes	100 rxn
6520	Condagene® Campylobacter jejuni	100 rxn
6521	Condagene® Cronobacter spp.	100 rxn
6522	Condagene® Vibrio spp.	100 rxn
6523	Condagene® STEC Screening	50+50+50 rxn
6524	Condagene® STEC ID	50x5 rxns
6541	Condagene® E. coli O157:H7 / O157	100 rxn

Allergens

CAT	PRODUCT	FORMAT
6530	Condagene® Allergens Almond	100 rxn
6531	Condagene® Allergens Cashew	100 rxn
6532	Condagene® Allergens Celery	100 rxn
6533	Condagene® Allergens Hazelnut	100 rxn
6534	Condagene® Allergens Lupin	100 rxn
6535	Condagene® Allergens Mustard	100 rxn
6536	Condagene® Allergens Peanut	100 rxn
6537	Condagene® Allergens Pecan (Walnut)	100 rxn
6538	Condagene® Allergens Sesame	100 rxn
6539	Condagene® Allergens Soy bean	100 rxn
6540	Condagene® Allergens Walnut	100 rxn

Equipment

CAT	PRODUCT
CDL96	CDL-96 RealTime System

CAT	PRODUCT
6503	Condagene® B-Light

CondaChrome®

CAT	PRODUCT	FORMAT
1122	CondaChrome® Salmonella Agar	500 g
1180	CondaChrome® EC with MUG Fluorogenic Agar	500 g
1285	CondaChrome® EC with MUG Fluorogenic Broth	500 g
1340	CondaChrome® E. coli-Coliforms Chromogenic Medium	500 g
1465	CondaChrome® Lauryl Sulfate Chromogenic Broth	500 g
1585	CondaChrome® Standard Method Chromogenic Agar (PCA)	500 g
1588	CondaChrome® E. coli O157:H7 Cromogenic Agar Base	500 g
2054	CondaChrome® Vibrio Agar	500 g
2076	CondaChrome® Staphylococcus Agar	500 g

ADDITIONAL RESOURCES

Product list

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