

# Salmonella Chromogenic Agar

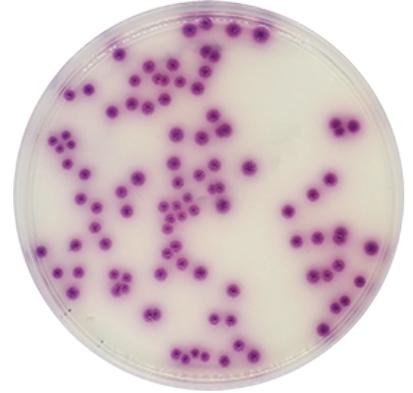
Cat. 1122

For the isolation of *Salmonella* spp in clinical samples and foods.

## Practical information

Applications	Categories
Selective isolation	Salmonella

Industry: Clinical / Food



## Principles and uses

Salmonella Chromogenic Agar is a selective chromogenic medium, used for the detection and presumptive identification of *Salmonella* species from clinical samples, foods and waters. This type of media have been traditionally used to differentiate species of *Salmonella* from the rest of the Enterobacteriaceae family, (based on their capacity to produce hydrogen sulfide and their inability to ferment lactose) but they are not really adequate as there are more than 2.000 species of *Salmonella* which do not have these characteristics.

Casein peptone and beef extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Chromogenic mixture, in conjunction with sodium citrate, aids in inhibiting Gram-positive organisms, *Proteus* and coliforms. Bacteriological agar is the solidifying agent. The addition of the supplement inhibit accompanying flora, avoiding possible false positive results.

To identify *Salmonella* species, this chromogenic agent is based on the combination of two chromogenic substrates that ease quick identification. Magenta colonies are a result of the hydrolysis of one of the chromogenic substrate by the *Salmonella* species due to the inability to utilise another chromogenic substrate. Microorganisms producing the enzyme that cleaves the second chromogenic substrate will produce blue-green colonies. Thus, non-*Salmonella* organisms appear blue-green or are not stained by any of the chromogenes of the medium. Supplement is added when more selectivity is desired. The supplement inhibit the accompanying flora, specially *Pseudomonas*, that could appear in the same colour as *Salmonella* colonies.

The medium can be used as a second medium for the detection of *Salmonella* in food and water according to ISO 6579 and ISO 19250 respectively.

## Formula in g/L

Bacteriological agar	12,8	Casein peptone	5
Chromogenic mixture	5,81	Beef extract	5
Sodium citrate	8,5		

## Preparation

Suspend 37,1 grams of the medium in one liter of distilled water at 80 °C. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. AVOID OVERHEATING. DO NOT AUTOCLAVE. Cool to 45-50 °C and, if desired, aseptically add two vials of *Salmonella* Chromogenic Agar Supplement (Cat. 6043). Pour into Petri dishes.

## Instructions for use

» For clinical diagnosis, the type of sample is fecal and from rectal tract.

- Inoculate the sample on the surface of the *Salmonella* Chromogenic Agar plates, streaking to obtain isolated colonies.
- Incubate at a temperature of 35±2 °C for 18-24 hours.
- Examine the color of the colonies.

» For other uses not covered by the CE marking:

Detection of *Salmonella* spp in foods according to ISO 6579:

- Preenrichment in non-selective liquid medium:

Inoculate the Buffered Peptone Water (Cat. 1402) with the sample or dilutions, and incubate at 34-38 °C for 18 h.

- Enrichment in/on selective media:

Inoculate, with the culture obtained in the pre-enrichment stage, the Rappaport Soy Broth (Vassiliadis)(Cat. 1174) or the Modified Semisolid Rappaport Vassiliadis medium (MSRV) (Cat. 1376), and the Tetrathionate Broth (Muller-Kauffmann) (Cat. 1173).

The Rappaport Soy Broth and the Modified Semisolid Rappaport medium are incubated at 41,5 °C for 24 h, and the Tetrathionate Broth at 37 °C for 24 h.

- Plating out on selective solid media:

From the selective enriched cultures, inoculate two selective isolation agar; XLD agar (Cat. 1274) and any other selective medium complementary to XLD agar, in this case, *Salmonella* Chromogenic Agar (Cat. 1122).

Incubate the XLD plates inverted at 35±2 °C for 18-24 h.

Incubate the *Salmonella* Chromogenic Agar (Cat. 1122) at 35±2 °C for 18-24 hours.

- Confirmation:

Subculture colonies of presumptive *Salmonella* and confirm their identity by biochemicals and serological tests.

Detection of *Salmonella* spp. in water samples according to ISO 19250:

- Preenrichment in non-selective medium:

Inoculate the Buffered Peptone Water (Cat. 1402) with the sample or dilutions, and incubate at 36±2 °C for 18±2 h.

- Enrichment in selective media:

Inoculate, with the culture obtained in the pre-enrichment stage, the Rappaport Soy Broth (Vassiliadis)(Cat. 1174) and the Tetrathionate Broth (Muller-Kauffmann) (Cat. 1173).

The Rappaport Soy Broth is incubated at 41,5±1 °C and the Tetrathionate Broth at 37±1 °C, both of them for 24±3 hours.

- Plating out on selective solid media:

From the selective enriched cultures, inoculate two selective isolation agar; XLD agar (Cat. 1274) and any other selective medium complementary to XLD agar in this case, (*Salmonella* Chromogenic Agar (Cat. 1122).

Incubate the XLD plates inverted at 35±2 °C for 18-24 h.

Incubate the *Salmonella* Chromogenic Agar (Cat. 1122) at 35±2 °C for 18-24 hours.

- Confirmation:

Subculture colonies of presumptive *Salmonella* and confirm their identity by biochemicals and serological tests.

## Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
Precipitates may appear	Fine powder	Beige	Amber, slightly opalescent	7,2±0,2

## Microbiological test

Incubation conditions: (35±2 °C / 18-24 h).

Microorganisms	Specification	Characteristic reaction
<i>Salmonella enteritidis</i> ATCC 13076	Good growth	Magenta colony
<i>Proteus vulgaris</i> ATCC 13315	Inhibited growth	Colorless colony
<i>Salmonella typhimurium</i> ATCC 14028	Good growth	Magenta colony
<i>Salmonella typhi</i> ATCC 19430	Good growth	Magenta colony
<i>Escherichia coli</i> ATCC 25922	Partially inhibited growth	Blue-green colony
<i>Salmonella dysenteriae</i> ATCC 29934	Good growth	Magenta colony

## Storage

Temp. Min.:2 °C

Temp. Max.:8 °C

## Bibliography

Journal Clinical Microbiology, Vol. 41 n° 7 p. 3229-3232. July 2003 Robert Cassar and Paul Cuschieri.

J.D. Perry, Michael Furs, Jeffrey Taylor, Et. Al. Journal Clinical Microbiology, March 1999, pag. 766-768 Vol. 37. n° 3.

Gallio di camillo, p. Et. Al. (J. Clinil Microbiol. March 1999.

International Standard UNE-EN-ISO 6579. Food Microbiology for human consumption and Animal Feed. Horizontal Method for the detection of *Salmonella* spp.

ISO 19250 water quality-detection of *Salmonella* spp