PRODUCT INFORMATION

Product Type: Divided Petri Dishes 90mm (DD)

Cat No. DD071 - XLD AGAR / CHROMAGAR SALMONELLA PLUS

Intended Use:

Salmonella isolation including detection of Salmonella Variants.

Principles and uses:

XLD AGAR:

A selective medium for the isolation of *salmonellae* and *shigella* from clinical specimens and foods. Xylose-Lysine-Desoxycholate Agar was originally formulated by Taylor for the isolation and identification of shigella from stool specimens. It has since been found to be a satisfactory medium for the isolation and presumptive identification of both salmonellae and shigella. It relies on xylose fermentation, lysine decarboxylation and production of hydrogen sulphide for the primary differentiation of *shigella* and *salmonellae* from non-pathogenic bacteria. Rapid xylose fermentation is almost universal amongst enteric bacteria, except for members of the *Shigella, Providencia* and *Edwardsiella* genera. Xylose is thus included in the medium so that *Shigella spp.* may be identified by a negative reaction. *Salmonella spp.* are differentiated from non-pathogenic xylose fermenters by the incorporation of lysine in the medium. *Salmonellae* exhaust the xylose and decarboxylate the lysine, thus altering the pH to alkaline and mimicking the Shigella reaction. However, the presence of *Salmonella* and *Edwardsiella spp.* is differentiated from that of *shigella* by a hydrogen sulphide indicator.

The high acid level produced by fermentation of lactose and sucrose, prevents lysine-positive coliforms from reverting the pH to an alkaline value, and non-pathogenic hydrogen sulphide producers do not decarboxylate lysine. The acid level also prevents blackening by these micro-organisms until after the 18–24-hour examination for pathogens. Sodium desoxycholate is incorporated as an inhibitor in the medium. The concentration used allows for the inhibition of *coliforms* without decreasing the ability to support *shigella* and *salmonellae*. The recovery of *Shigella spp*. has previously been neglected despite the high incidence of shigellosis. This has been due to inadequate isolation media. The sensitivity and selectivity of X.L.D. Agar exceeds that of the traditional plating media e.g. Eosin Methylene Blue, *Salmonella-Shigella* and Bismuth Sulphite agars, which tend to suppress the growth of *shigella.* Many favorable comparisons between X.L.D. Agar and these other media have been recorded in the literature. The recovery of salmonellae and shigellae is not obscured by profuse growth of other species therefore X.L.D. Agar is ideal for the screening of samples containing mixed flora and suspected of harboring enteric pathogens e.g. medical specimens or food products. Chadwick, Delisle and Byer recommended the use of this medium as a diagnostic aid in the identification of *Enterobacteriaceae*.

Reference:

1. Taylor W.I. (1965) Am. J. Clin. Path. 44. 471-475.
2. McCarthy M.D. (1966) N.Z. J. Med. Lab. Technol. 20. 127-131.
3. Isenberg H.D., Kominos S. and Sigeal M. (1969) Appl. Microbiol . 18. 656-659.
4. Taylor W. I. and Harris B. (1965) Am. J. Clin. Path. 44. 476-479.
5. Taylor W. I. and Harris B. (1967) Am. J. Clin. Path. 48. 350-355.
6. Taylor W. I. and Schelhart D. (1967) Am. J. Clin. Path. 48. 356-362.
7. Taylor W.I. and Schelhart D. (1966) Appl. Microbiol . 16. 1387-1392.
8. Rollender M.A., Beckford O., Belsky R.D. and Kostroff B. (1969) Am. J. Clin. Path. 51. 284-286.
9. Taylor W. I. and Schelhart D. (1969) Appl. Microbiol . 18. 393-395.
10. Dunn C. and Martin W.J. (1971) Appl. Microbiol . 22. 17-22.
11. Chadwick P., Delisle G.H. and Byer M. (1974) Can. J. Microbiol . 20. 1653-1664.

CHROMAGAR SALMONELLA PLUS:
Chromogenic medium for the isolation of Salmonella species including lactose positive Salmonella. This medium meets the ISO 6579-1 ISO norm.
Related samples can be processed by direct streaking on the plate, as well as prior appropriate enrichment step.

- If the agar plate has been refrigerated, allow to warm to room temperature before inoculation.
- Streak sample onto plate.
- Incubate in aerobic conditions at 37 °C for 18-24 hours.

INTERPRETATION
Microorganism Typical colony appearance
Salmonella (including lactose positive Salmonella) → mauve
E. coli → colourless
Coliforms → blue
Proteus → colourless or inhibited

PERFORMANCE & LIMITATIONS

- Final identification must be done by biochemistry and serology (e.g. Latex agglutination test from Microgen), and can be performed directly from the plates on suspected colonies.
- This medium has a very high sensitivity but some Salmonella Dublin may appear colorless, nevertheless Salmonella Dublin is a rarely encountered serovar.
- Some E. coli strains may develop a very slight mauve coloration.
- Some Pseudomonas may have similar mauve colony aspect and can be eliminated by an Oxydase test.

Composition:
XLD AGAR:
Yeast extract 3.0 g/L
L-Lysine HCl 5.0 g/L
Xylose 3.75 g/L
Lactose 7.5 g/L
Sucrose 7.5 g/L
Sodium desoxycholate 1.0 g/L
Sodium chloride 5.0 g/L
Sodium thiosulphate 6.8 g/L
Ferric ammonium citrate 0.8 g/L
Phenol red 0.08 g/L
Agar 12.5 g/L

CHROMAGAR SALMONELLA PLUS:
Agar 15.0 g/L
Peptone and Yeast extract 8.0 g/L
Salts 8.5 g/L
Chromogenic mix 1.3 g/L
Growth mix 6ml/L

Storage: 2-8 °C
Appearance: XLD AGAR: Red coloured
CHROMAGAR SALMONELLA PLUS: white opaque
pH Range: XLD AGAR / CHROMAGAR SALMONELLA PLUS: 7.2 – 7.6

Package contents: 10 plates in a package
Shelf life: 1.4 months
Exp. Date: Printed on label and on the item.
Required materials not supplied: Laboratory equipment as required.

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Implementation Date: 30/07/25
Version Number: 01

Warning and Precautions - For professional use only. Follow good microbiological lab practices while handling specimens and culture. Do not use Petri dishes if they show evidence of microbial contamination, discoloration, drying, cracking, or other signs of deterioration. Avoid freezing and overheating. The Petri Dishes may be used / inoculated up to the expiration date and incubated for the recommended incubation times. After use and prior to discarding, specimen containers and all contaminated material, including the used culture media and contaminated culture containers, must be sterilized or incinerated by validated procedures. Since the nutritional requirements of organisms vary, some strains may be encountered that fail to grow or grow poorly on this medium.
If excessive moisture is observed, invert the bottom over an off-set lid and allow to air dry in order to prevent formation of a seal between the top and bottom of the plate during incubation. Storage Instructions: On receipt, store plates in the dark at 2–8°C. Avoid freezing and overheating. Do not open until ready to use.

Performance Testing Results:
GPT: inoculum 10-100 cfu.
Inhibitory properties: inoculum 10000 cfu.

TEST	ATCC	Incubation Temp. (℃)	Incubation Cond.	Reaction 1 CHROM. SALMONELLA	Reaction 2 XLD
Salmonella typhimurium	14028	33-37 ℃	Aerobic, 24 hours	Growth Pink-mauve	Growth Pink, black center, H_2S (+)
Salmonella enteritidis	13076	33-37 ℃	Aerobic, 24 hours	Growth Pink-mauve	Growth Pink, black center, H_2S (+)
Salmonella arizonae	13314	33-37 ℃	Aerobic, 24 hours	Growth Pale pink	Growth Pink-yellow, w/o or with black center, H_2S (+)
Shigella flexneri	29903	33-37 ℃	Aerobic, 24 hours	Growth Colorless	Growth Pink red
Shigella sonnei	29930	33-37 ℃	Aerobic, 24 hours	Growth Colorless	Growth Pink red
Klebsiella pneumoniae	13883	33-37 ℃	Aerobic, 24 hours	Growth Big, metallic blue	Growth Yellow
Proteus mirabilis	4630	33-37 ℃	Aerobic, 24 hours	Partially inhibited If growth - colorless	Growth Pink-orange, some strains with black
Escherichia coli	25922	33-37 ℃	Aerobic, 24 hours	Growth Colorless	Partially inhibited, If growth - yellow color
Enterococcus faecalis	19433	33-37 ℃	Aerobic, 24 hours	Inhibited	Inhibited

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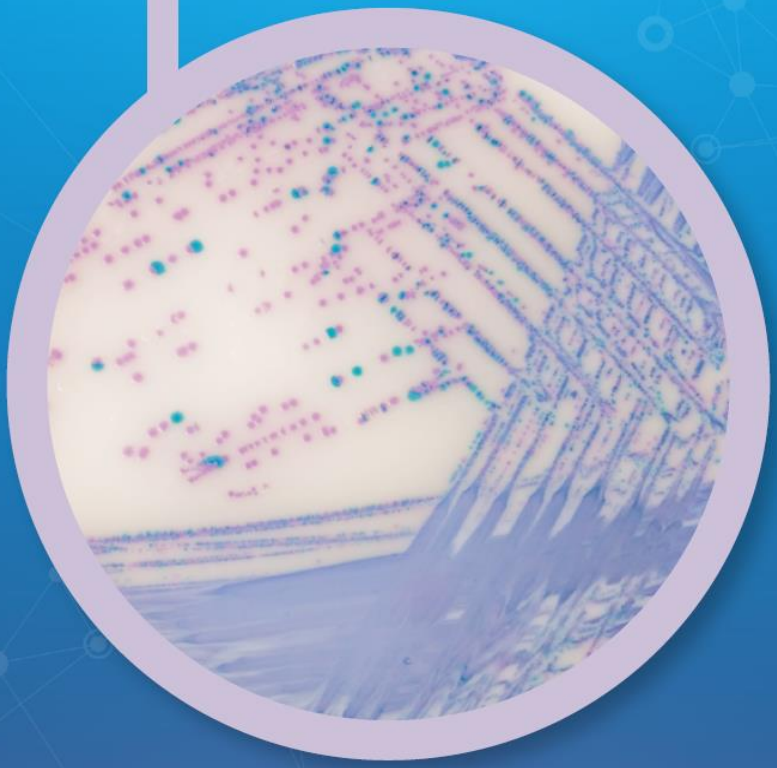
Food Industry

www.CHROMagar.com

CHROMagar™ Salmonella Plus



For detection and isolation of *Salmonella* species including lactose positive *Salmonella*

CHROMagar™

The Chromogenic Media Pioneer

PHL-MI-261-01

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CHROMagar™ Salmonella Plus

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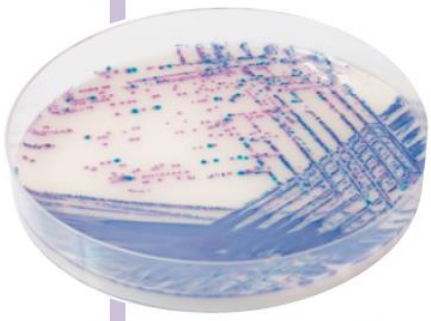

Opaque plate: with CHROMagar™ White Opaque Supplement

For detection and isolation of *Salmonella* species including lactose positive *Salmonella* in food samples

Background

Mainly due to contamination in the food chain and/or during food-production processes, *Salmonella* commonly induces enteric illness whose major symptoms are abdominal cramps, diarrhea, nausea, vomiting.

Medium Performance

1. **MEETS ISO 6579-1 REQUIREMENTS**
by detecting lactose positive *Salmonella* in intense mauve colour.

2. **EASY TO READ BY NAKED EYE**
Another feature of this medium resides in its nice colour contrast due to the fact that *E. coli* are colourless. *E. coli*, which are usually present in abundance in samples tested for *Salmonella* and could potentially hide suspect colonies, are no longer a concern.

3. **HIGH SENSITIVITY AND SPECIFICITY**

Salmonella including lactose positive *Salmonella* **99 %***

*Specificity and sensitivity from scientific study: "Evaluation of a new chromogenic medium CHROMagar™ Salmonella Plus for the detection of *Salmonella* species including lactose positive *Salmonella*, *S.Typhi and S.Paratyphi*" de Beaumont C., Breuil J., Dedicova D., Tran Q. 2006. Poster presented during ECCMID meeting.

Plate Reading

- *Salmonella* including *S. typhi*, *S. paratyphi* A and lactose positive *Salmonella*
→ mauve
- Coliforms
→ blue
- *E. coli*
→ colourless
- *Proteus*
→ colourless or inhibited

Did you know? Ramba**QUICK™** Salmonella broth enrichment can be used ahead of the inoculation step of CHROMagar™ Salmonella Plus culture plate, following the Ramba**QUICK™** Salmonella Method to rapidly detect *Salmonella*.
Product code for this broth enrichment is SQ001.

Medium Description

Powder Base	Total ..... 32.8 g/L Agar ..... 15.0 Peptone and Yeast extract ..... 8.0 Salts ..... 8.5 Chromogenic mix ..... 1.3 Storage at 15/30 °C - pH: 7.5 ± 0.2 Shelf Life ..... 3 years
+ Supplement (included in the pack)	1st : Liquid form ..... 6 mL/L Storage at 15/30 °C Shelf Life ..... 5 years
CHROMagar™ White Opaque supplement	In order to obtain a white opaque background: Powder form : ..... 1.0 g/L Storage at 15/30 °C Shelf Life ..... 3 years

Usual Samples	food, meat, fresh eggs,milk products etc.
Procedure	Inoculation after selective broth enrichment of samples according to ISO 6579. Incubation 18-24 h at 37 °C. Aerobic conditions.
Scientific Publications on this product: available on www.CHROMagar.com Please read carefully the instructions for use (IFU document) available on www.CHROMagar.com	

LF-EXT-016-EN | Version 8.0 / Sep-24

PHL-MI-261-01

Order References

Please use these product references when contacting your local distributor:

CHROMagar™ Salmonella Plus:
5000 mL pack SA162
25 L pack SA163-25

CHROMagar™ White Opaque supplement (optional):
5000 mL pack SU702
25 L pack SU703-25

Manufacturer: CHROMagar, 29 avenue George Sand, 93210 La Plaine Saint-Denis - France
Email: CHROMagar@CHROMagar.com
Website: www.CHROMagar.com

Find your nearest distributor on www.CHROMagar.com/contact

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