PRODUCT INFORMATION

Product Type: Divided Petri Dishes 90mm (DD)

Cat No. DD017 - SS AGAR / XLD AGAR

Intended Use:

SS AGAR: SS Agar is recommended for isolation and differentiation of pathogenic enteric bacilli, especially Salmonella and Shigella from clinical specimens, including feces, and food samples.

XLD AGAR: Salmonella isolation including detection of Salmonella Variants.

Principles and uses:

SS AGAR

Differentiation of gram-negative bacilli on SS Agar is based on the fermentation of lactose and subsequent absorption of neutral red; gram negative bacilli which ferment lactose produce pink to red colonies. Lactose-non fermenters, such as Salmonella and Shigella, form transparent, colorless colonies. Bile salts, brilliant green, and citrates are selective agents which inhibit gram-positive bacteria and coliforms. Sodium thiosulfate, a sulfur source, and ferric ammonium citrate, an indicator, are added to enable organisms which produce H2S to form black-centered colonies, including some strains of Salmonella. The medium contains a bile salts mixture to inhibit the growth of gram-positive organisms.

Limitations SS AGAR:

1. Organisms other than Salmonella and Shigella which grow on this medium may be differentiated by their ability to ferment lactose and form pink or red colonies.
2. SS Agar is not recommended for primary isolation of Shigella spp. because it is highly selective and may inhibit some strains.

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 XLD AGAR:

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**.**

Composition:

SS AGAR:

Lactose - 10.0 g/L
Meat Peptone - 2.5 g/L
Bile Salts - 8.5 g/L
Ferric Citrate - 1.0 g/L
Sodium Citrate - 8.5 g/L
Neutral Red - 25.0 mg/L
Sodium Thiosulfate - 8.5 g/L
Brilliant Green - 0.33 mg/L
Beef Extract - 5.0 g/L
Agar - 13.5 g/L
Casein Peptone - 2.5 g/L

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

Storage: 2-8 °C
Appearance: SS AGAR: Red-Orange, Very Slightly Opalescent
XLD AGAR: Red coloured
pH Range: SS AGAR: 6.8 - 7.2
XLD AGAR: 7.2 – 7.6

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

Hy Laboratories Ltd.
6 Menachem Plaut St., Park Tamar, Rehovot 7670606, Israel
Tel. +972.8.9366475 **Email.** hylabs@hylabs.co.il

Implementation Date: 28/10/25
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 SS AGAR		Reaction 2 XLD AGAR	
Salmonella typhimurium	14028	33-37 ℃	Aerobic, 18-24 hours	Growth	Colorless, black centered	Growth	Pink-red, black centered
Shigella flexneri	29903	33-37 ℃	Aerobic, 18-24 hours	Growth	Smooth opaque colorless	Growth	Pink-red
Shigella sonnei	29930	33-37 ℃	Aerobic, 18-24 hours	Growth	Colorless	Growth	Smooth, opaque, colorless
Proteus mirabilis	4630	33-37 ℃	Aerobic, 18-24 hours	Growth	Smooth, opaque, may be black	Growth	Pink to orange, may be black
Escherichia coli	25922	33-37 ℃	Aerobic, 18-24 hours	Poor	Pink	Poor	Yellow
Enterococcus faecalis	19433	33-37 ℃	Aerobic, 18-24 hours	Inhibition		Inhibition	

Hy Laboratories Ltd.
6 Menachem Plaut St., Park Tamar, Rehovot 7670606, Israel
Tel. +972.8.9366475 Email. hylabs@hylabs.co.il

Implementation Date: 28/10/25
Version Number: 01