

## 17184 m-HD Endo Broth with Brilliant Green (m-Hajna Damon Endo Broth with Brilliant Green; Membrane filter HD Endo Broth with Brilliant Green) NutriSelect® Plus

For the detection of coliforms in highly polluted waters using membrane filter technique.

### Composition:

Ingredients	Grams/Litre
Casein enzymic hydrolysate	10.0
Peptic digest of animal tissue	10.0
Yeast extract	3.0
Lactose	20.0
Sodium deoxycholate	0.2
Sodium chloride	5.0
Dipotassium phosphate	6.0
Sodium sulfite	2.1
Brilliant green	0.14

Final pH 7.5 +/- 0.2 at 25°C

Store dehydrated powder below 30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

Appearance(color): Faint green & Faint yellow and Faint beige, free flowing powder  
Color and Clarity: Dark green coloured clear solution without any precipitate

### Directions:

Suspend 56.44 g in 1 litre distilled water. Heat to boiling to dissolve the medium completely. Do not autoclave. Dispense as desired. It is preferable to use the medium on the same day.

### Principle and Interpretation:

Coliform bacteria are defined as facultatively anaerobic, Gram-negative, non-spore-forming rods that ferment lactose vigorously to acid and gas at  $35 \pm 2$  °C within 24 or 48 h. Coliform bacteria generally belong to four genera of the *Enterobacteriaceae*: *Citrobacter freundii*, *Enterobacter cloacae*, *Enterobacter aerogenes*, *E. coli*, and *Klebsiella pneumoniae* (2).

The bacteria are classically used as indicators of faecal contamination or water pollution from sewage and thus are of sanitary significance. Coliform bacteria usually originate from the intestinal tract of warm-blooded animals (called fecal coliforms), and may also originate from waters from wood industry, surfaces of red wood water tanks, biofilms within drinking water distribution systems (3).

M-HD Endo Broth with BG is formulated as per Hajna and Damon (1) and is used for detection of coliforms in highly polluted water using membrane filter technique (4). This medium is a modification of M-HD Endo Broth with the basic fuchsin in the later being replaced with Brilliant green in the former. M-HD Endo Broth with BG contains casein enzymic hydrolysate, peptic digest of animal tissue and yeast extract as the sources of nitrogen and other essential nutrients. Lactose is the fermentable carbohydrate and energy source. Sodium deoxycholate and brilliant green form the selective system against non-coliform bacteria including *Shigella* species (4). Sodium chloride maintains osmotic



balance while phosphate act as a buffer. Brilliant green along with sodium sulfite forms the indicator system.

Possible testing method:

Sterile cotton absorbent pads are saturated with around 2 ml of M-HD Endo Broth with BG. Membrane filter through which the test water sample has been passed is aseptically placed on these cotton pads. Following an incubation at 35-37°C for 18-24 hours.

Lactose-fermenting coliforms will form green colonies with metallic sheen. Non-lactose fermenting coliforms will form colorless colonies. The development of a metallic sheen occurs when the organism produces aldehydes with the fermentation of lactose.

Cultural characteristics observed after an incubation of for 18-24 hrs at 35- 37°C

Organisms (ATCC/WDCM)	Inoculum (CFU)	Growth	Color of colony(on the membrane)
<i>Escherichia coli</i> (25922/00013)	50-100	+++	green with metallic sheen
<i>Enterobacter aerogenes</i> (13048/00175)	50-100	+++	green
<i>Salmonella Typhi</i> (6539/-)	50-100	+++	colourless
<i>Staphylococcus aureus</i> (25923/00034)	$\geq 10^3$	-	

References:

1. Hajna A. A. and Damon S. R., 1954, Public Health Rep., 69, 58.
2. Dutka B. J., Chau A. S. Y., Coburn J., 1974, Water Res. 8 : 1047-1055.
3. Hurst C. J., Knudsen G. R., McInerney M. J., Stetzenbach L. D., Walter M. V. (Eds.) 1997, Manual of Environmental Microbiology, ASM, Washington, D.C.
4. MacFaddin J. F. , 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore

### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

