

TM 417 -EC BROTH (ISO 7251:2005, 11866-1:1997)

INTENDED USE

For selective enumeration of faecal and non faecal coliforms in water.

PRODUCT SUMMARY AND EXPLANATION

EC Broth is employed in elevated-temperature tests for distinguishing organisms of the total coliform group that also belong to the fecal coliform group. The fecal coliform test, using EC Medium, is applicable to investigations of drinking water, stream pollution, raw water sources, wastewater treatment systems, bathing waters, seawaters, and general water-quality monitoring. EC Medium is used in the MPN (Most Probable Number) test for fecal coliforms. The medium was originally described by Hajna and Perry. Fishbein and Surkiewicz used the EC confirmation test for recovery of *E. coli* from frozen foods and nut meats and reported that the test worked optimally when conducted at 45.5°C with incubation being limited to 24 hours. The procedure employing EC Medium provides information regarding the source of the coliform group (fecal or non-fecal) when used as a confirmatory test. EC Broth is recommended by American public Health Association (APHA) and AOAC International for detection of water, wastewater and foods.

COMPOSITION

Ingredients	Gms / Ltr
Tryptose	20.000
Lactose	5.000
Bile salts mixture	1.500
Dipotassium phosphate	4.000
Monopotassium phosphate	1.500
Sodium chloride	5.000

PRINCIPLE

Medium contains Tryptone, provides amino acids and nitrogen for the growth. Bile salt mixture inhibit gram-positive bacteria especially bacilli and faecal *Streptococci* sp. Sodium chloride maintains the osmotic balance of the medium. Monopotassium phosphate and Dipotassium phosphate are the buffering agents and helps to control the pH during fermentation of lactose. Lactose- positive bacteria metabolize Lactose and produces gas, (as indicated by Durham tubes) within 24 hour or less is a presumptive evidence of the presence of coliform bacteria or indicating fecal coliforms. Inoculate the tubes containing 10 ml of EC Broth and the Durham tubes and incubate at wished temperature for 24 – 48 hours. In case of gas formation, the Durham tubes rises up. This medium can be used at 37°C for the detection of coliforms (no gas formation of *E. coli*) or use at 45- 50°C for the isolation of *Escherichia coli* and other coliforms (gas formation of *E. coli*).

INSTRUCTION FOR USE

- Dissolve 37.00 grams in 1000ml distilled water.
- Gently heat to boiling with swirling to dissolve the medium completely.
- Dispense in test tubes containing inverted Durham tubes.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool to 45-50°C.

QUALITY CONTROL SPECIFICATIONS

Appearance of Dehydrated powder : Cream to yellow colour, homogeneous free flowing powder



Appearance of Prepared medium : Yellow coloured, clear solution
pH (at 25°C) : 6.8± 0.2

INTERPRETATION

Culture Characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Gas Production	Incubation Temperature	Incubation period
<i>Escherichia coli</i>	25922	50-100	Luxuriant	Positive reaction	44.5°C ± 0.2	24-48 Hours
<i>Klebsiella pneumoniae</i>	13883	50-100	Luxuriant	Positive reaction	44.5°C ± 0.2	24-48 Hours
<i>Pseudomonas aeruginosa</i>	27853	50-100	Fair-Good	Negative reaction	44.5°C ± 0.2	24-48 Hours
<i>Bacillus subtilis</i>	6633	≥1000	Inhibited	-	44.5°C ± 0.2	24-48 Hours
<i>Enterobacter aerogenes</i>	13048	≥1000	Inhibited	-	44.5°C ± 0.2	24-48 Hours
<i>Enterococcus faecalis</i>	29212	≥1000	Inhibited	-	44.5°C ± 0.2	24-48 Hours

PACKAGING

In 100 & 500 gm packaging size.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 2-8°C and protect from direct Sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use powder if they show evidence of microbial contamination, discoloration, drying, or other signs of deterioration.










DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. L.J. Harris, M.E. Stiles, E. coli counts in vacuum-packed beef by the MPN technique, J. Food Prot. 55, 266. (1992).
2. American Public Health Association (1998) Standard Methods for the Examination of Water and Wastewater. 20th Edn. APHA Inc. Washington DC.
3. Fishbein and Surkiewicz, Appl. Microbiol., 12:127. (1964).
4. Hajna and Perry, Am. J. Publ. Health, 33:550. (1943).
5. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
6. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
7. Food and Drug Administration. 2000 Bacteriological Analysis Manual Online. AOAC International Gaithersburg, MD.
8. Eaton AD., Cleaceri EW. Rice EW. And Greenberg AE. Standard Methods for the Examination of Water and Wastewater. 21st Ed. APHA, Washington DC



 GMP Good Manufacturing Practices Certified	 Best Before	 Quantity	 Catalogue Number	 Manufacturer
 Temperature Unit	 Lot / Batch Number	 Consults Instructions for Use	 QR Code	

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**
Revision: 18th June 2020