

EC Broth (*E. coli* Broth)

TECHNICAL DATA SHEET

Selective Enrichment Medium for *Escherichia coli* and
Fecal Coliforms

TDS-AS-1214

Issue Date: March 2025

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Selective Enrichment Medium for Escherichia coli and Fecal Coliforms

PRODUCT SUMMARY

Product Name	EC Broth (<i>E. coli</i> Broth)
Catalog Number	AS-1214
Medium Type	Selective enrichment liquid medium
Target Organisms	<i>Escherichia coli</i> and fecal coliforms
Technique	Most Probable Number (MPN) / confirmation enrichment
Final pH	6.9 ± 0.2 at 25 °C

OVERVIEW

EC Broth (also known as *E. coli* Broth) is a selective enrichment liquid medium originally developed by Hajna and Perry (1951) for the detection, isolation, and enumeration of fecal coliforms, particularly *Escherichia coli*, in water, milk, food, and environmental samples.

The medium incorporates bile salts to inhibit Gram-positive bacteria and non-intestinal coliforms, while lactose serves as a fermentable carbohydrate to promote gas production in Durham tubes. A buffered phosphate system maintains stable pH and supports recovery of stressed or low-count organisms. Incubation at elevated temperature (44.5 °C) provides enhanced specificity for *E. coli* confirmation. EC Broth is widely used in the Most Probable Number (MPN) technique and complies with APHA, FDA-BAM, ISO 7251, and NF ISO 16649 standards.

APPLICATIONS

- Selective enrichment and detection of fecal coliforms and *E. coli* in drinking, wastewater, and recreational water
- Enumeration of coliforms in milk, dairy products, and shellfish using MPN methods
- Isolation from food samples such as meat and vegetables for hygiene monitoring
- Confirmation of thermotolerant *E. coli* prior to subculture on EMB or MacConkey agar

KEY FEATURES & BENEFITS

Feature	Benefit
Selective enrichment	Bile salts selectively inhibit Gram-positive bacteria while allowing high recovery of <i>E. coli</i>
Rapid readout	Lactose fermentation produces gas in Durham tubes for rapid presumptive identification
Thermotolerant confirmation	Elevated incubation at 44.5 °C enhances specificity for <i>E. coli</i>
Recovery support	Buffered formulation supports injured cells from chlorinated or stressed environments
Easy interpretation	Clear, light straw-coloured broth enables easy turbidity and gas observation
Flexible workflow	Suitable for incubation at 37 °C (coliforms) or 44.5 °C (<i>E. coli</i> confirmation)

PRINCIPLE OF THE MEDIUM

EC Broth selectively enriches fecal coliforms through bile salt inhibition of competing flora. Lactose fermentation by coliforms results in acid and gas production, detected using Durham tubes. The phosphate buffer system stabilises pH during incubation, while elevated temperature incubation (44.5 °C) suppresses non-thermotolerant organisms, enabling presumptive confirmation of *E. coli*.

TYPICAL COMPOSITION (PER LITRE)

Component	Concentration	Function
Tryptone (or Pancreatic Digest of Casein)	20.0 g	Primary nitrogen source
Lactose	5.0 g	Fermentable carbohydrate
Bile Salts No. 3	1.12 g	Selective inhibitor
Sodium Chloride	5.0 g	Osmotic balance
Dipotassium Phosphate	4.0 g	Buffering salt
Potassium Dihydrogen Phosphate	1.5 g	Buffering salt

PREPARATION

Step	Procedure
1	Suspend 36.62 g of dehydrated medium in 1 L of purified or distilled water.
2	Mix thoroughly until dissolved; gentle heating may be used, but avoid boiling.
3	Dispense into tubes containing inverted Durham tubes (e.g., 10 mL per tube).
4	Sterilise by autoclaving at 121 °C (15 psi) for 15 minutes with caps loosened.
5	Cool to room temperature and tighten caps.
6	The prepared broth should be clear and light straw-coloured without precipitate.

INCUBATION & INTERPRETATION

Inoculation	Inoculate aseptically with homogenised sample dilutions
Incubation 1	37 °C for 24 ± 2 hours for coliform detection
Incubation 2	44.5 ± 0.2 °C (water bath, water level above broth) for <i>E. coli</i> confirmation
Positive Reaction	Turbidity with gas in Durham tube
Negative Reaction	Clear broth with no gas
Follow-up	Presumptive positives should be confirmed by biochemical testing (e.g., IMViC)

STORAGE & STABILITY

Dehydrated Medium	Store at 10–30 °C in a tightly closed container, protected from moisture and light
Prepared Broth	Store at 2–8 °C in sealed tubes and use within 2 weeks
Discard Criteria	Discard if turbid without inoculation, contaminated, or discoloured

QUALITY & COMPLIANCE

Manufacture	Manufactured under controlled conditions for batch-to-batch consistency
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Method Alignment	Compliant with APHA, FDA-BAM, ISO 7251, and NF ISO 16649 methodologies
Benchmarking	Performance comparable to leading international reference media suppliers
HS / AHECC Code	3821.00.00
Customs Description	Prepared culture media for the development or maintenance of microorganisms

Intended Use: For laboratory research and microbiological quality control use only. Not for human or veterinary consumption. Handle using appropriate biosafety precautions (BSL-2).

Disclaimer: This technical data sheet is intended as a guide for trained laboratory personnel. Suitability should be verified by the end user under their own operating conditions and quality system.