

## EC Broth (NCM0065)

### Intended Use

EC Broth is used for the detection of coliform bacteria at 37°C and *Escherichia coli* at 44.5°C. EC Broth is not intended for use in the diagnosis of disease or other conditions in humans.

### Description

EC Broth (*Escherichia coli* Broth) is a selective enrichment broth designed for the isolation of coliforms, including *E. coli*, from water and food samples. It was the recommended medium of the American Public Health Association (APHA) and the AOAC.

EC Broth is made selective for coliforms by the inclusion of Bile Salts in the dehydrated medium. The selective nature of this medium ensures that the growth of non-coliform bacteria is minimized. The medium is buffered by the addition of potassium phosphates and osmotically balanced by sodium chloride. The medium is used at 37°C for coliform organisms and 44.5°C is recommended for the isolation *E. coli*.

### Typical Formulation

Tryptone	20.0 g/L
Lactose	5.0 g/L
Bile Salts	1.5 g/L
Dipotassium Phosphate	4.0 g/L
Potassium Diphosphate	1.5 g/L
Sodium Chloride	5.0 g/L

Final pH: 6.9 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

### Precaution

Refer to SDS

### Preparation

1. Dissolve 37 grams of the medium in 1000 mL of purified water.
2. Mix thoroughly.
3. Dispense into tubes of appropriate volume and, where applicable, add inverted Durham tubes.
4. Sterilize by autoclaving at 121°C for 15 minutes.

### Test Procedure

Refer to appropriate references for specific procedures using EC Medium.

### Quality Control Specifications

**Dehydrated Appearance:** Powder is homogeneous, free flowing, and beige.

**Prepared Appearance:** Prepared medium is clear, dark yellow without precipitate.

**Expected Cultural Response:** Cultural response in EC Medium incubated in an aerobic atmosphere and the indicated temperature. Cultures were examined for growth after 24 ± 2 hours incubation.

# Technical Specification Sheet



<u>MICRO-ORGANISM</u>	<u>ATCC</u>	<u>APPROX. INOCULUM (CFU)</u>	<u>EXPECTED RESULTS</u>			
			<u>Direct inoculation into EC at 35C/44.5C</u>		<u>LTB pre-enrichment at 35C; EC at 44.5</u>	
			<u>Growth</u>	<u>Gas</u>	<u>Growth</u>	<u>Gas</u>
<i>Enterobacter aerogenes</i>	13048	10-100 for 35C; 10-100 for 44.5C; 10-100 for LTB pre-enrichment	Fair at 35C; none to poor at 44.5C	± at 35C - at 44.5C	None to Good	-
<i>Enterococcus faecalis</i>	29212	>10 <sup>4</sup>	Inhibited	N/A	Inhibited	N/A
<i>Escherichia coli</i>	25922 or 8739 or 11775	10-100 for 35C; 10 <sup>3</sup> for 44.5C; 10-100 for LTB pre-enrichment	Fair	+	Fair	Weak + to +
<i>Escherichia coli</i>	25922	10-100 for 44±1C (ISO)	Turbid growth	+	N/A	N/A
<i>Escherichia coli</i>	8739	10-100 for 44±1C (ISO)	Turbid growth	+	N/A	N/A
<i>Pseudomonas aeruginosa</i>	27853	10-100 for 44±1C (ISO)	No Growth	-	N/A	N/A

The organisms listed are the minimum that should be used for quality control testing.

## Results

Gas production with growth in EC Medium within 24 hours or less is considered a positive fecal coliform reaction. Failure to produce gas with little or no growth is a negative reaction.

## Expiration

Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

## Limitation of the Procedure

Due to varying nutritional requirements, some strains may be encountered that grow poorly or fail to grow on this medium.

## Storage

Store dehydrated culture media at 2 – 30°C away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

## References

- Standards Methods for the Examination of Water and Wastewater, 2017, 23<sup>rd</sup> edition, American Public Health Association, Inc., Washington, D.C.
- Compendium of methods for the microbiological examination of foods, 2015, 4<sup>th</sup> edition. American Public Health Association, Washington, D.C.
- [www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.htm](http://www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalManualBAM/default.htm).



620 Leshar Place • Lansing, MI 48912  
800-234-5333 (USA/Canada) • 517-372-9200  
foodsafety@neogen.com • foodsafety.neogen.com

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4. Perry and Hajna, (1943). American Journal of Public Health, 33:550.
5. Perry and Hajna, (1944). American Journal of Public Health, 34:735.

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