



BBL™ Lauryl Sulfate Broth with Durham Tube, 10 mL
BBL™ Lauryl Sulfate Broth, Durham Tube, 10 mL
(Double Strength)

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QUALITY CONTROL PROCEDURES

I INTRODUCTION

Lauryl Sulfate Broth is a medium used in standard methods of the American Public Health Association for the detection of coliform organisms. The single strength medium is for testing 1 mL or less of samples. The double strength medium is for testing 10 mL quantities of samples.

II PERFORMANCE TEST PROCEDURE

1. Inoculate representative samples with the cultures listed below.
 - a. Inoculate tubes with a 0.01 mL calibrated loopful of 10⁻¹ dilutions of 18- to 24-h **Trypticase™** Soy Broth cultures.
 - b. Incubate tubes with loosened caps at 35 ± 2°C in an aerobic atmosphere.
 - c. Include a tube of **Trypticase** Soy Broth as a nonselective control for the *Enterococcus* strain.
2. Examine tubes after 18–24 and 42–48 h for amount of growth, selectivity and gas production. Gas production is defined as the presence of gas in the inverted Durham tube with a corresponding effervescence produced when the tube is gently shaken.
3. Expected Results

Organisms	ATCC™	Recovery
* <i>Escherichia coli</i>	25922	Moderate to heavy growth with gas production
* <i>Enterobacter aerogenes</i>	13048	Moderate to heavy growth with gas production
<i>Salmonella choleraesuis</i> subsp. <i>choleraesuis</i> serotype Typhimurium	14028	Moderate to heavy growth without gas production
* <i>Enterococcus faecalis</i>	29212	No growth to light growth without gas production

*Recommended organism strain for User Quality Control.

III ADDITIONAL QUALITY CONTROL

1. Examine tubes as described under "Product Deterioration."
2. Visually examine representative tubes to assure that any existing physical defects will not interfere with use.
3. Incubate uninoculated representative tubes aerobically at 20–25°C and 30–35°C and examine after 7 days for microbial contamination.

PRODUCT INFORMATION

IV INTENDED USE

Lauryl Sulfate Broth is used for the detection of coliform organisms in materials of sanitary importance.

V SUMMARY AND EXPLANATION

Mallmann and Darby developed this medium for the detection of coliform organisms by APHA procedures.¹ They incorporated sodium lauryl sulfate into the formulation since it proved to be selective but not inhibitory for coliforms. Lauryl Sulfate Broth is used for the detection of coliforms in foods.^{2,3} It is now the medium of choice for use in the presumptive phase of the Standard Total Coliform Fermentation Technique for the microbiological examination of water.⁴

VI PRINCIPLES OF THE PROCEDURE

Lactose provides a source of fermentable carbohydrate for coliform organisms. The fermentation of lactose with gas formation is a presumptive test for coliforms. Sodium lauryl sulfate inhibits organisms other than coliforms.

VII REAGENTS

Lauryl Sulfate Broth (Single Strength)	Lauryl Sulfate Broth (Double Strength)
Approximate Formula* Per Liter Purified Water	Approximate Formula* Per Liter Purified Water
Sodium Lauryl Sulfate0.1 g	Sodium Lauryl Sulfate0.2 g
Pancreatic Digest of Casein20.0 g	Pancreatic Digest of Casein40.0 g
Lactose5.0 g	Lactose10.0 g
Dipotassium Phosphate2.75 g	Dipotassium Phosphate5.5 g
Monopotassium Phosphate2.75 g	Monopotassium Phosphate5.5 g
Sodium Chloride5.0 g	Sodium Chloride10.0 g

*Adjusted and/or supplemented as required to meet performance criteria.

Warnings and Precautions: For Laboratory Use.

Refrigerated broth generally becomes cloudy or forms precipitates but clears at room temperature incubation.

Tubes with tight caps should be opened carefully to avoid injury due to breakage of glass.

Observe aseptic techniques and established precautions against microbiological hazards throughout all procedures. After use, prepared tubes, specimen containers and other contaminated materials must be sterilized by autoclaving before discarding.

Storage Instructions: On receipt, store tubes in the dark at 2–25°C. Avoid freezing and overheating. Do not open until ready to use. Minimize exposure to light. Tubed media stored as labeled until just prior to use may be inoculated up to the expiration

date and incubated for the recommended incubation times. Allow the medium to warm to room temperature before inoculation.

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

VIII SPECIMEN COLLECTION AND HANDLING

Consult appropriate texts for detailed information and recommended procedures.¹⁻⁴

IX PROCEDURE

Material Provided: Lauryl Sulfate Broth with Durham Tube or Lauryl Sulfate Broth with Durham Tube, 10 mL (Double Strength)

Materials Required But Not Provided: Ancillary culture media, reagents, quality control organisms and laboratory equipment as required.

Test Procedure: Observe aseptic techniques.

Refer to the official test procedures for the detection of coliforms in the compendia of methods for the microbiological examination of foods and waters.²⁻⁴

User Quality Control: See "Quality Control Procedures."

X RESULTS

After incubation of the tubes with loosened caps at $35 \pm 0.5^\circ\text{C}$ in an aerobic atmosphere for 24 ± 2 h, examine for growth, acidic reaction and gas production in the Durham tubes. If no gas has formed and been trapped in the inverted tube, reincubate and reexamine after 48 ± 3 h.⁴

Production of an acidic reaction or gas within 48 ± 3 h constitutes a positive presumptive test for the presence of coliforms in the sample.⁴ The result should be confirmed by additional standard testing.

XI LIMITATIONS OF THE PROCEDURE

For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification. Consult appropriate texts for detailed information and recommended procedures.¹⁻⁴

XII AVAILABILITY

Cat. No.	Description
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297145	BBL™ Lauryl Sulfate Broth with Durham Tube, 10 mL, Ctn. of 100 size A tubes
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221248	BBL™ Lauryl Sulfate Broth with Durham Tube, 10 mL, (Double Strength), Ctn. of 100 size A tubes
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XIII REFERENCES

1. Mallmann, W.L., and C.W. Darby. 1941. Uses of a lauryl sulfate typtose broth for the detection of coliform organisms. *Am. J. Public Health* 31:127-134.
2. Downes, F.P. and K. Ito (ed.). 2001. *Compendium of methods for the microbiological examination of foods*, 4th ed. American Public Health Association, Washington, D.C.
3. Horwitz, W. (ed.). 2000. *Official methods of analysis of AOAC International*, 17th ed., vol.1. AOAC International, Gaithersburg, Md.
4. Clesceri, L.S., A.E. Greenberg, and A.D. Eaton (ed.). 1998. *Standard methods for the examination of water and wastewater*, 20th ed. American Public Health Association, Washington, D.C.

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