Lauryl Sulfate Broth (i23076)

For the detection of *coliform* organisms in water and waste water, according to the formula of the APHA.

Industry: Food / Dairy products

Principles & Uses

Lauryl Sulfate Broth (also known as Lauryl Tryptose Broth or LTB) is a selective medium used for enumerating *coliforms* in water, dairy products, and for confirming lactose fermentation with gas production in foods. *Coliforms* are a subgroup of *Enterobacteriaceae* that grow at 37°C and ferment lactose, producing acid and gas within 48 hours. LSB is a valuable tool in microbiology due to its ability to perform the indole test directly within the tube.

APHA recommends the use of Lauryl Tryptose Broth for Most Probable Number Presumptive Tests of *coliforms* in various samples, and ISO standards also endorse it.

Tryptose in a 2% concentration fosters early *coliform* growth. This buffered broth helps slow lactose fermenters produce gas faster. It contains tryptose for essential nutrients, lactose as a fermentable carbohydrate, potassium phosphates for buffering, sodium chloride for osmotic balance, and sodium lauryl sulfate as a selective agent to inhibit unwanted organisms.

Lauryl Sulfate Broth was developed to encourage robust growth and gas production from small coliform inocula while inhibiting aerobic spore-forming bacteria. Gas production can be detected using Durham tubes, and the lauryl sulfate effectively suppresses the growth of undesirable bacteria.

Composition (gr/L)

Tryptose 20, Lactose 5, Dipotassium Phosphate 2.75, Monopotassium Phosphate 2.75, Sodium Chloride 5, Sodium Lauryl Sulfate 0.1.

Final pH at 25°C 6.8 ± 0.2

Preparation from dehydrated Powder

Dissolve 35.6 g of the powder in 1 Liter of purified water. Dispense in test tubes, containing inverted Durham tubes, in 10 mL amounts for testing samples of 1 mL or less.

Note: For testing 10 mL quantities of samples, dissolve 71.2 g of the powder in 1 Liter of purified water and distribute in 10 mL amounts. The concentration of the medium should be varied according to the size of the test samples.

Autoclave at 121°C for 15 minutes.

NOTE: Refrigerated broth generally becomes cloudy or forms precipitates but clears upon warming to room temperature. However, clarity is not important because only gas production is significant.

Quality Control

Dehydrated Appearance: Light beige, free-flowing, homogeneous.

Prepared Appearance: Light to medium amber, clear to very slightly opalescent.

Reaction of 3.56% Solution at 25°C: pH 6.8 ± 0.2

Cultural Response

Cultural response was observed after 24 hours of incubation at 35 ± 2˚C.

Organism (ATCC*)	Recovery	Gas
Enterobacter aerogenes (13048)	Good	+
Escherichia coli (25922)	Good	+
Staphylococcus aureus (25923)	Marked to complete inhibition	-

*ATCC is a registered trade mark of the American Type Culture Collection.

The prepared medium on the left exhibits a light amber color. In both cases, with E. coli (on the left) and E. aerogenes, the Durham tubes are filled with gas due to lactose fermentation.

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.