

## Lactose Broth (i23074)

For detection of the presence of *coliform* organisms, as a pre-enrichment broth for *salmonella* and in the study of lactose fermentation of bacteria in general.

Industry: Water / Food

## Principles & Uses

Lactose Broth is a crucial medium for detecting *coliform* bacteria, commonly used for assessing water quality and food safety. It contains beef extract and peptone, providing essential nutrients like nitrogen, carbon compounds, vitamins, and amino acids. Lactose, the fermentable sugar, is vital for differentiating *coliform* bacteria. These bacteria ferment lactose, producing gas within 48 hours, indicating potential contamination. It's a key medium recommended by APHA for *coliform* testing in various substances, including water, food, and milk.

Gas formation is detected through Durham tubes, which rise or develop bubbles when gas is produced. This is a presumptive test for *coliform* bacteria, including *E. coli*. Lactose Broth plays a significant role in microbiological laboratories for assessing fecal contamination, an important indicator of water safety. It is also used for pre-enrichment in food testing for *Salmonella*, where it helps in diluting inhibitory substances and supporting bacterial growth. Large water samples may require double-strength Lactose Broth to maintain appropriate concentration.

## Composition (gr/L)

Beef extract 3, Peptone 5, Lactose 5.

Final pH at 25°C 6.9 ± 0.2

## Preparation from dehydrated Powder

Suspend 13 g of the powder in one Liter of distilled water. Warm gently until solution is complete. Dispense in test tubes containing inverted Durham tubes, in 10 mL amounts for testing samples of 1 mL or less. Autoclave at 121°C for 15 minutes. Cool as quickly as possible.

## Quality Control

Dehydrated Appearance: Light beige to light tan, free flowing, homogeneous.

Prepared Appearance: Light amber, clear.

Reaction of 1.3% Solution at 25°C: pH 6.9 ± 0.2

## Cultural Response

Cultural characteristics were observed after incubation at 35 ± 2°C for 18-48 hours.

Organism (ATCC*)	Recovery	Gas
<i>Escherichia coli</i> (25922)	Good	+
<i>Enterobacter aerogenes</i> (13048)	Good	+
<i>Enterococcus faecalis</i> (19433)	Good	-
<i>Salmonella enterica</i> (6539)	Good	-

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



*E. coli* with a Durham tube filled with gas resulting from lactose fermentation (left). *Salmonella* showing growth without lactose fermentation (right).

## Storage

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