



## Lactose Broth

M1003S

Lactose Broth is used for the detection of coliform bacteria in water, foods, dairy products. It is recommended by BIS committee under the specifications IS:5401-1969.

### Composition\*\*

Ingredients	Gms / Litre
Peptic digest of animal tissue	5.000
Beef extract	3.000
Lactose	5.000
Final pH ( at 25°C)	6.9±0.1

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 13 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. For larger inocula (10 ml or more), concentrated medium may be prepared to account for medium dilution by the inoculum. Dispense in 5 ml amounts in tubes containing inverted fermentation vial (Durhams tube) as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Note : If desired, for detecting acid production, 3 ml of an aqueous solution of bromocresol purple (prepared by grinding 0.5 g of bromocresol purple in 100 ml of 0.01 N sodium hydroxide until dissolved) may be added to one litre of the medium.

### Principle And Interpretation

Lactose Broth is recommended by APHA in the performance and confirmation of the presumptive test for coliform bacteria in water (1), food (2) and milk (3). Present formulation is recommended by BIS for detection and estimation of coliform bacteria in food stuff as a confirmatory medium (4). As per BIS (4) the discrete colonies obtained from EMB Agar Plates (M022S) are inoculated in Lactose Broth (M1003S). Formation of gas in the lactose tubes indicates presence of coliforms. This medium can be used as an alternate to Lauryl Sulphate Broth in the presumptive test of the MPN of standard coliforms.

Peptic digest of animal tissue and beef extract supply essential nutrients to the organisms. Lactose is a fermentable carbohydrate for the coliforms. Tubes of Lactose Broth are inoculated with dilutions of water or milk, etc. under test, and incubated at 35°C and examined for gas formation after 24 and 48 hours. Members of the coliform group are defined as aerobic and facultative anaerobic gram-negative and non-sporing bacilli which ferment lactose with gas formation within 48 hours at 35°C. In testing dairy products, Lactose Broth is used only in the completed test (4). Large water samples may require double strength Lactose Broth to minimize the final volume.

### Quality Control

#### Appearance

Yellow coloured homogeneous free flowing powder

#### Colour and Clarity of prepared medium

Light to medium amber coloured clear solution without any precipitate.

#### Reaction

Reaction of 1.3% w/v aqueous solution at 25°C. pH : 6.9±0.1

#### pH

6.80-7.00

#### Cultural Response

M1003S: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Gas
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#### Cultural Response

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<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	Positive reaction
<i>Enterococcus faecalis</i> ATCC 29212	50-100	luxuriant	Negative reaction
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	Positive reaction
<i>Pseudomonas aeruginosa</i> ATCC 10145	50-100	luxuriant	Negative reaction

### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2- 8°C. Use before expiry date on the label.

### Reference

- 1.Greenberg A. E., Trussell R. R. and Clesceri L. S. (Eds.), 1985, Standard Methods for the Examination of Water and Wastewater, 16th ed., A.P.H.A., Washington, D.C
- 2.Speck M. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., A.P.H.A., Washington, D.C.
- 3.Richardson (Ed.), 1985, Standard Methods for the Examination of Dairy Products, 15th ed., A.P.H.A., Washington, D.C.
- 4.Bureau of Indian Standards, IS : 5401 - 1969 (Second reprint - June 1990).

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