



## Lactose Monohydrate Broth (Broth Medium D) (Lactose Broth, Medium 4)

MAP1003

(ME1003/M1003B/MM1003)

### Intended Use:

Recommended for detection of coliform bacteria in water, food, dairy products in accordance with EP/BP/IP.

### Composition\*

Ingredients	g / L
Gelatin peptone \$	5.000
HM peptone B #	3.000
Lactose monohydrate	5.000
pH after sterilization ( at 25°C)	6.9±0.2

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

# Equivalent to Beef extract , \$ Equivalent to Pancreatic digest of gelatin

### Directions

Suspend 12.75 grams (the equivalent weight of dehydrated medium per litre) in 1000 ml purified/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. Mix well and distribute into tubes with inverted Durham's tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes and cool immediately.

### Principle And Interpretation

Fluid Lactose Medium is recommended by EP, BP, IP, APHA (1-4) in the performance and confirmation of the presumptive test for coliform bacteria in pharmaceutical products (1-3), water (4), food (5) and milk (6). This medium can be used as an alternate to Lauryl Sulphate Broth in the presumptive test of the MPN of standard coliforms. This medium is also used for pre-enrichment of *Salmonella* for its detection in pharmaceutical raw materials. Gelatin peptone and HM peptone B supply essential nutrients to the organisms. Lactose is a fermentable carbohydrate for the coliforms. Tubes of Fluid Lactose Medium are inoculated with dilutions of water or milk, etc. under test, and incubated at 35-37°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-spore-forming bacilli which ferment lactose with gas formation within 48 hours at 35°C. In testing dairy products, Fluid Lactose Medium is used only in the completed test (5). Large water samples may require double strength Fluid Lactose Medium to minimize the final volume.

### Type of specimen

Pharmaceutical samples; Water samples; Food and dairy samples

### Specimen Collection and Handling:

For pharmaceutical samples, follow appropriate techniques for sample collection, processing as per guidelines (1-3). For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (4). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (5,6). After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

## Limitations

1. Large water samples may require double strength Lactose Monohydrate Medium to minimize the final volume.
2. Further biochemical identification is necessary for confirmation.

## Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

## Quality Control

### Appearance

Cream to yellow homogeneous free flowing powder

### Colour and clarity of prepared medium

Light amber coloured clear solution in tubes

### pH

6.70-7.10

### Cultural Response

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

Organism	Inoculum (CFU)	Growth	Gas
# <i>Klebsiella aerogenes</i> ATCC 13048 (00175*)	50-100	luxuriant	Positive reaction
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	50-100	luxuriant	Negative reaction
^ <i>Pseudomonas paraaeruginosa</i> ATCC 9027 (00026*)	50-100	luxuriant	Negative reaction
<i>Escherichia coli</i> ATCC 8739 (00012*)	50-100	luxuriant	Positive reaction
<i>Salmonella</i> Typhimurium ATCC 14028 (00031*)	50-100	luxuriant	Negative reaction
<i>Salmonella</i> Abony NCTC 6017 (00029*)	50-100	luxuriant	Negative reaction

Key : (\*) Corresponding WDCM numbers      ^ Formerly known as *Pseudomonas aeruginosa*

(#) Formerly known as *Enterobacter aerogenes*

## Storage and Shelf Life

Store between 10-30°C in tightly closed container and the prepared medium at 15-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in-order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

## Reference

1. European Pharmacopoeia, 2022, 10 th volume, European Directorate for the quality of medicines & Healthcare.
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3. Indian Pharmacopoeia, 2007 Govt. of India, Ministry of Health and Family Welfare, New Delhi.
4. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.
5. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

6. Wehr H M and Frank J H., 2004, Standard Methods for the Examination of Dairy Products, 17th ed., APHA Inc., Washington, D.C.
7. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
8. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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**Disclaimer :**

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