# M-Standard Methods Broth

**M1114**

M-Standard Methods Broth is used for enumeration of bacteria in milk and other samples of sanitary importance in dairy industries by membrane filter technique.

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Casein enzymic hydrolysate | 10.000 |
| Yeast extract | 5.000 |
| Dextrose | 2.000 |
| Final pH ( at 25°C) | 7.0±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Directions

Suspend 17 grams in 1000 ml distilled water. Heat if necessary with frequent agitation to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

## Principle And Interpretation

The dairy industry has relied for safety on control of the manufacturing process and on the use of tests such as the standard plate count and coliform count as indicators of post process contamination. Testing of dairy products or dairy plant environment samples for pathogens has not been routinely performed. However, there is a need for at least surveillance testing of product and environmental samples as well as for re-evaluation of processing and environmental control procedures. Evaluation of this may require that product and environmental samples be analyzed for pathogens (5).

M-Standard Methods Broth also called as M-Tryptone Glucose Yeast Broth is used as non-selective general purpose media recommended by APHA (1) for determination of bacterial counts in dairy products and water (2), foods (3) and other specimens respectively.

M-Standard Methods Broth has similar composition as Plate Count Agar except agar and other ingredients are in double quantity (4). Casein enzymic hydrolysate and yeast extract provide the essential nutrients like amino acids, minerals and trace growth factors. Dextrose serves as the carbon source. About 2 ml of the broth medium is used to saturate sterile absorbent pads. Filters used for membrane filtration are then aseptically placed on these absorbent pads.

## Quality Control

**Appearance**
Cream to yellow homogeneous free flowing powder

**Colour and Clarity of prepared medium**
Light amber coloured clear solution without any precipitate

**Reaction**
Reaction of 1.7% w/v aqueous solution at 25°C. pH : 7.0±0.2

**pH**
6.80-7.20

**Cultural Response**
M1114: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

| Organism | Inoculum (CFU) | Growth |
|---|---|---|
| **Cultural Response** | | |
| *Escherichia coli ATCC 25922* | 50-100 | luxuriant |
| *Staphylococcus aureus ATCC 25923* | 50-100 | luxuriant |

| | | |
|---|---|---|
| *Salmonella Typhi ATCC 6539* | 50-100 | luxuriant |
| *Streptococcus pyogenes ATCC 19615* | 50-100 | luxuriant |
| *Staphylococcus epidermidis ATCC 12228* | 50-100 | luxuriant |
| *Pseudomonas aeruginosa ATCC 27853* | 50-100 | luxuriant |

## 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. American Public Health Association, 1960, Standard Methods for the Examination of Water and Wastewater, 11th ed., APHA, New York.
2. Greenberg A. E., Trussell R. R. and Clesceri L. S. (Eds.), 1985, Standard Methods for the Examination of Water and Wastewater, 16th ed., APHA, Washington, D.C.
3. Speck M. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
4. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.

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